APRIL 1949

The American City

TRAILSIDE SHELTER

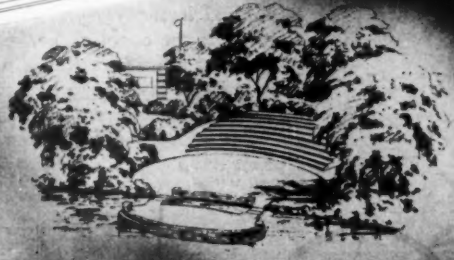
To aid your city in planning for

PARK and RECREATION WEEK

May 21-30, 1949

and for subsequent park and playground improvements and activities, see several editorials and articles in this issue.

The front-cover plans are of City Park, Fairfield, Ill. (See page 99)

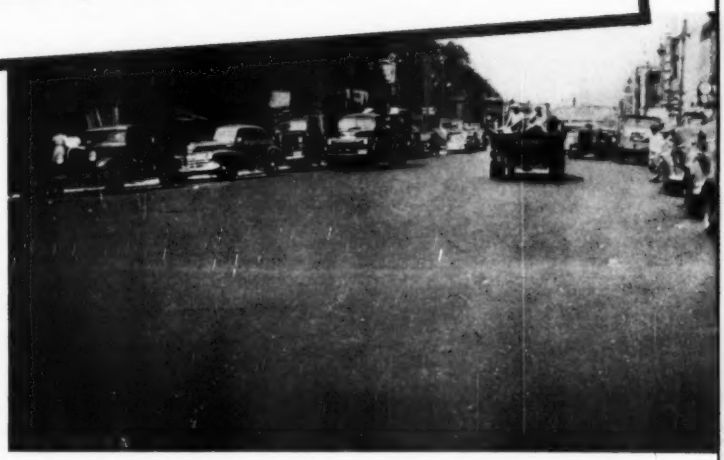


AMPHITHEATER AND DANCING TERRACE

PICNIC SHELTER AND REFECTORY

The old cobblestone pavement on Elizabeth Avenue, important business thoroughfare of Elizabeth, N. J.

How to modernize your city's old streets



The same street after being resurfaced with Texaco Asphaltic Concrete by the American Paving Company, Newark, N. J.

These before-and-after photographs furnish striking evidence of the transformation which occurs when an old, uneven city street is resurfaced with Texaco Asphaltic Concrete. No need to disturb the existing cobblestone pavement, which provides an excellent foundation. The new asphalt wearing surface, laid in two courses, is three inches thick.

Resilient, heavy-duty Texaco Asphaltic Concrete paving will serve concentrated municipal traffic for years with a minimum of maintenance. Whether your old pavements are cobblestone, cement concrete or brick, follow the example of scores of progressive cities by resurfacing them by the above method. Use of modern mechanical pavers in laying the new asphalt surface subjects traffic and local business to a minimum of inconvenience.

For helpful information on Texaco Asphaltic Concrete and other types of asphalt paving, write for copy of the booklet, "Texaco Asphalt Paving—Plant-mixed Types."

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TEXACO

REG. T.M.

TEXACO ASPHALT

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THE FUTURE HOLDS GREAT PROMISE

Neither chance nor mere good fortune has brought this nation the finest telephone service in the world. The service Americans enjoy in such abundance is directly the product of their own imagination, enterprise and common sense.

THE PEOPLE of America have put billions of dollars of their savings into building their telephone system. They have learned more and more ways to use the telephone to advantage, and have continuously encouraged invention and initiative to find new paths toward new horizons.

They have made the rendering of telephone service a public trust; at the same time, they have given the telephone companies, under regulation, the freedom and resources they must have to do their job as well as possible.

In this climate of freedom and responsibility, the Bell System has provided service of steadily increasing value to more and more people. Our policy, often stated, is to give the best possible service at the lowest cost consistent with financial safety and fair treatment of employees. We are organized as we are in order to carry that policy out.

BELL Telephone Laboratories lead the world in improving communication devices and techniques. Western Electric Company provides the Bell operating companies with telephone equipment of the highest quality at reasonable prices, and can always be counted on in emergencies to deliver the goods whenever and wherever needed.

The operating telephone companies and the parent company work together so that improvements in one place may spread quickly to others. Because all units of the System have the same service goals, great benefits flow to the public.

Similarly, the financial good health of the Bell System over a period of many years has been to the advantage of the public no less than the stockholders and employees.

It is equally essential and in the public interest that telephone rates and earnings now and in the future be adequate to continue to pay good wages, protect the billions of dollars of savings invested in the System, and attract the new capital needed to meet the service opportunities and responsibilities ahead.

There is a tremendous amount of work to be done in the near future and the System's technical and human resources to do it have never been better. Our physical equipment is the best in history, though still heavily loaded, and we have many new and improved facilities to incorporate in the plant. Employees are competent and courteous. The long-standing Bell System policy of making promotions from the ranks assures the continuing vigor of the organization.

WITH these assets, with the traditional spirit of service to get the message through, and with confidence that the American people understand the need for maintaining on a sound financial basis the essential public services performed by the Bell System, we look forward to providing a service better and more valuable in the future than at any time in the past. We pledge our utmost efforts to that end.

Leroy A. Wilson
President
AMERICAN TELEPHONE AND TELEGRAPH COMPANY

From the 1948 Annual Report of the American Telephone and Telegraph Company

Our Municipal Notebook

America's Parks and Playgrounds on Parade

NEXT month, May 21 to 30 is to be recognized as "Park and Recreation Week" in the United States and Canada. The American Institute of Park Executives, 50-year-old organization of administrators of most of America's park facilities, has instituted this project. The American Recreation Society, the National Recreation Association, the National Conference of State Parks, and a long list of related organizations have joined in the program. Youth organizations and civic bodies like the Boy Scouts, the Girl Scouts, Kiwanis International and many others, are also lending their support. THE AMERICAN CITY, recognizing the importance that parks — national, state, county, metropolitan, and municipal — occupy in our national economy and welfare, is happy to devote several articles in this issue to park and recreation matters of interest and importance to municipal officials and planning consultants.

Although Boston Common has served as a city park almost since colonial days, actually America's parks as we now conceive them are hardly 50 years old—though as green spaces Central Park in New York, Lincoln Park in Chicago, and other famous public recreation areas have existed for a longer time.

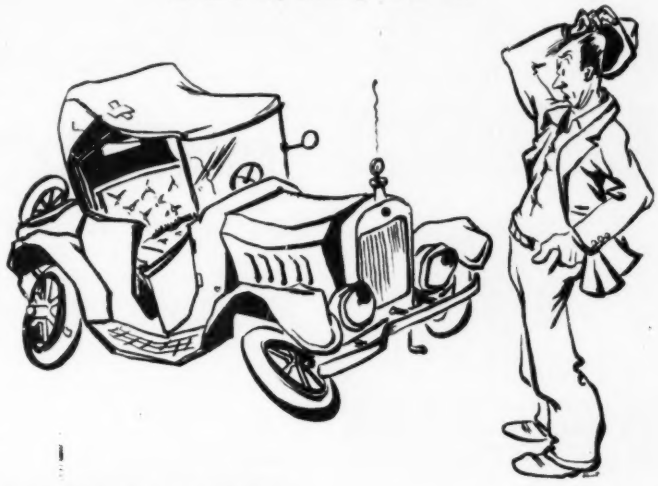
Today few Americans have a full appreciation of what our public parks offer in scenic splendors, opportunities for healthful and enjoyable outdoor recreation, and myriad forms of indoor, social, physical, and esthetic activities.

The national parks alone now have over 20,000,000 acres, including national monuments, historic sites, parkways, parks in the District of Columbia, and the national parks proper. The U. S. Forest Service of the Department of Agriculture has 176,000,000 acres of national forests and wild-life areas open to camping, fishing, hunting and full enjoyment of nature's beauties. Forty-seven of our states have now established a total of over 3,000 state park units, state forests, historic sites, and wayside areas with a total area of over 7,000,000 acres. One hundred and fifty-two counties have set aside a total of 197,000 acres of county parks and forest preserves. The whole story of our city parks is not even yet known statistically, but listed figures show that 1,465 cities, towns, and villages operate over 19,000 separate park and playground units, with an area of nearly 5,000 acres valued at well over $2,000,000,000.

So, the park and recreation leaders of the country may well stage a parade next month. THE AMERICAN CITY salutes them and recognizes that the services and benefits that these men and women administer are growing more and more in importance, ranking with our great public-school system as one of the chief elements that make this the greatest democratic nation in the world.

Municipal Replacements Needed

A recent leaflet in the "Your City—Tomorrow" series of the Cleveland City Planning Commission



YOUR CITY WEARS OUT TOO!

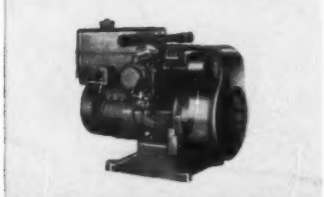
Bridges, streets, sewers, fire stations, and other public buildings—many in Cleveland are 30, 40, even 60 years old!

As these things wear out, they have to be replaced. Cleveland should spend at least 6 million dollars a year, just to keep even—to hold our present standard of public services.

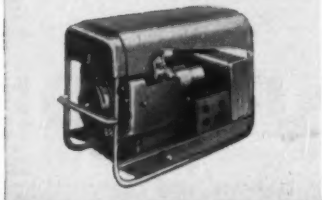
The current 6-year Capital Improvement Program schedules 6 million dollars a year from general taxes for this kind of replacement, as well as 3 to 4 million for new public services that are badly needed.

For information, consult CLEVELAND CITY PLANNING COMMISSION, 501 City Hall

PARK MAINTENANCE
Portable plants for electric hedge trimmers, grass clippers, saws, spades.



FIRE FIGHTING
Truck-mounted or hand carried plants for floodlights and power tools.



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Mounted on truck or trailer, plant can be moved quickly to any spot.

STANDBY POWER
Keeps signal systems operating when commercial power is interrupted.

ONAN ELECTRIC PLANTS

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From Maine to California, progressive American cities are using Onan Electric Plants to cut costs, speed jobs and maintain vital public services.

Onan *Portable* Electric Plants bring labor-saving, fast-working electric power to any spot in parks and playgrounds, on golf courses and boulevards. Equipped with carrying handles, carrying frames or mounted on two-wheel dollies, Onan Portable Electric Plants are easily carried, wheeled or trucked *right to the job!*

Onan Standby Electric Plants guard against breakdown in municipal signal systems and communications. Whenever power is interrupted, the Onan Automatic Standby Plant starts itself and provides power for all necessary uses. When commercial power is restored, the plant stops automatically.

With scores of models available, it's easy to choose an Onan Electric Plant to fill any need for portable, stationary and standby electric power in city operation. Gasoline-powered models from 350 to 35,000 watts. Diesel engine powered models from 2,500 to 35,000 watts.

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The Story of Cardiff . . .

Cardiff, Illinois, once was a proud community of 1,500 people of Welsh descent. Its economy was based on a coal mine and it flourished. Choice lots sold for $1,000. Townspeople paraphrased old John Smith's Jamestown order: "Work or get out," they said. There was no lack of energy.

But today Cardiff has a population of fifteen. Its business houses and residences are decaying or decayed. Crumbling sidewalks lose themselves in the thick vegetation. The bank's safe is rusting away in a weed patch that once was a thriving business corner.

What happened?

Cardiff's coal mine was "mined out." It could no longer compete with the big commercial mining operations. Despite the fact that Cardiff was located in one of the richest agricultural areas in the world, the people failed to change to serve the needs of agriculture. They were coal miners — not grocers, garagemen, carpenters, electricians, mill operators, hardware dealers, feed makers. And when the mine failed, Cardiff became a ghost town.

Now people drive for miles to see the "Ghost Town of Central Illinois."

The Story of Roanoke . . .

Roanoke, Illinois, was also a coal mining town. It, too, was located in a fertile agricultural area, not more than an hour's drive from Cardiff. And Roanoke's coal mine also was "mined out."

But Roanoke today is a thriving little community of 1,200 citizens. It has manufacturing plants, an alfalfa-dehydrating plant, good schools, thriving businesses, grain elevators, up-and-coming churches, a growing library, a high degree of home ownership, and good paved streets.

Roanoke is still developing. It has a long-range park and recreational program under way. It is working on a street-lighting project. A new subdivision is being built up. Jobs are being provided in local industry for young people as they finish school.

What made the difference between Roanoke and Cardiff?

Roanoke did not put all of her eggs in one basket. She changed with the changing times. Her people learned the value of cooperation. They understood the importance of long-range planning on all fronts: economic, social and cultural, and civic.

That spells the difference between Roanoke and Cardiff.

The Road to Roanoke——or Cardiff . . . .

"THERE are hundreds of Cardiffs all over the country—towns that either cannot or will not adapt themselves to changing conditions. And there are hundreds of Roanokes. In between there are thousands of communities that will become Cardiffs or Roanokes in the years ahead. Which will your community be? Which way is your town going?

"As you know, a majority of the small towns in the central part of the United States has been virtually static since the turn of the century. They have gained little in population. They have adjusted poorly in any instances to our changing civilization with its highways, its speed, and its communications."

The challenge shown here, pointing out that there is no static community, is from the booklet "Community Survival."* Two pages from this publication are shown above in much-reduced size. The booklet describes the unique and successful Central Illinois Community-Betterment Program which was sponsored by *The Daily Pantagraph* of Bloomington, Ill., and the College of Agriculture and the College of Commerce of the University of Illinois.

Five Illinois communities with a population of less than 2,000 each were selected to participate in this program: Stanford, Colfax, Roanoke, Lexington, and Minonk. In each case community councils were set up, with executive and action committees, to organize and work for community-betterment programs. An impressive list of successful accomplishments is now resulting in a more satisfying community life in each of the five participating municipalities.

More Magazine Aid To Civic Projects

IN ITS February issue THE AMERICAN CITY called attention to *McCall's Magazine's* "Yardville, U. S. A." article as an outstanding example of editorial aid to community improvement by a popular magazine. Since this comment was written, another magazine of wide circulation and influence—the *Woman's Home Companion*—has published (in its March issue) three articles which rate special mention as aids to more effective public service. These are: "Too Many Babies Die," by Jack Harrison Pollack; "Let's Really Abolish Grade Crossings," by John T. Harris, and "Isn't It Your Fault Too?" by Vern Swartzfager.

In these three articles the *Companion* calls attention to effective methods of saving babies' lives; to the indifference which is largely responsible for the yearly toll of more than four thousand grade-crossing injuries; and to some things that can be done about juvenile delinquency.

Special attention was called in a full-page newspaper advertisement to the fact that the *Companion* now offers to women's clubs packaged Club Programs based on the magazine's public-service articles.

A Lane of Traffic Or a Line of Trees?

PAGE 77 of this issue tells how the college town of Grinnell, Iowa, has sacrificed some of its distinctive charm to the cry for wider streets leading into its business district.

Many citizens have regarded the tree-lined streets as one of the community's major assets. But a bond issue for street widening was voted and a contract awarded before local officials and civic organizations appear to have awakened to the tree-slaughter that the project would involve. A partial compromise was reached, but many fine trees have succumbed to so-called progress.

THE AMERICAN CITY realizes, of course, that conditions sometimes exist when a lane of traffic is of greater value to a city—or at least to some of its business interests—than a line of trees. But there seems little doubt that the successful cities of the future will be those that combine efficiency, comfort, and beauty. Communities fortunate enough to have attractive, tree-lined streets would be well advised to look carefully into the possibility of relieving downtown traffic congestion by the use of parking meters, provisions for off-street parking, and other devices, as preferable to tree-slaughter.

* The front cover of the March issue of THE AMERICAN CITY was based on pages from this booklet, which has been published as Circular 633 of the Extension Service in Agriculture and Home Economics, College of Agriculture, University of Illinois.

RICHMOND uses two HORTON *Elevated Tanks* in its unique automatic pressure-flow control system

New method of controlling booster pumps allows flexibility in locating tanks

Richmond, Virginia, recently annexed a large area west of the city, and became responsible for the water supply in a new "Fourth Service Area." In order to prevent inadequate service in other parts of the city, and as a precaution against pump failure, two 1,000,000-gal. Horton elevated tanks were installed in the new area to supplement existing pumping equipment with gravity water pressure. The topography, however, dictated tank locations far from the pumping station, and seriously complicated the method of automatic control of pumps. A "pressure-only" method was being used, and the friction in the long transmission mains to the tanks increased the pressure and caused the pumps to shut down before the tanks were filled. The pumps were working without direct regard to the water level in the tanks of water demand.

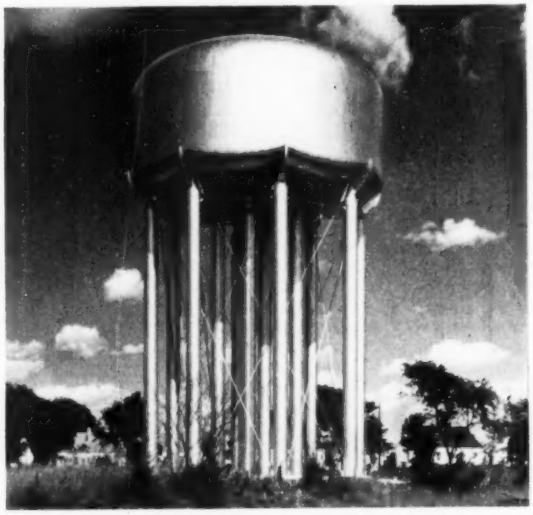
"Pressure-Flow" Control System Devised

A "pressure-flow" control system has now been installed in which the pumps are started when the pressure drops to a predetermined figure. They continue to operate, however, until they have delivered to the tanks a predetermined quantity of water, regardless of pressure. The tanks then serve the system until low pressure again starts the pumps. Some of the advantages of this control method are (a) maximum pumping efficiency with lower power costs, (b) freedom to locate the tanks where they will work most effectively, and (c) elimination of the need for installing new transmission mains.

Two 1,000,000-gal. Horton tanks have been erected at Richmond. Both are of the radial-cone type—a design which is used in large capacity tanks (500,000 to 2,500,000-gals.) to prevent excessive ranges in head.

Ask our nearest office for details and estimating figures.

One of the two 1,000,000-gal. Horton radial-cone bottom tanks at Richmond. It is 97 ft. to bottom, and has a range in head of 25 ft.



The second 1,000,000-gal. tank to be built at Richmond is shown here, 77 ft. 6 in. to bottom, with a 35-ft. range in head.

CHICAGO BRIDGE & IRON COMPANY

Atlanta 3.....2114 Healey Bldg.
Birmingham 1.....1502 North Fiftieth Street
Boston 10.....1002—201 Devonshire St.
Chicago 4.....2127 McCormick Bldg.
Cleveland 15.....2236 Guildhall Bldg.
Detroit 26.....1501 Lafayette Bldg.
Havana.....402 Abreu Bldg.
Houston 2.....2101 National Standard Bldg.
Los Angeles 14.....1503 General Petroleum Bldg.
New York 6.....3308—165 Broadway Bldg.
Philadelphia 3.....1616—1700 Walnut Street Bldg.
Salt Lake City 1.....1501 First Security Bank Bldg.
San Francisco 11.....1233—22 Battery Street Bldg.
Seattle 1.....1301 Stuart Bldg.
Tulsa 3.....1625 Hunt Bldg.

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

Some Small Water Works Lack Business-like Operation

By HUGH H. CONNOLLY
Graduate Student
University of Illinois

A RECENT survey covering 14 small communities in east-central Illinois disclosed that, in many cases, even though the water department did show a book profit, it was not operated in a business-like manner. The towns covered in this survey ranged in population from 700 to 5,000 inhabitants.

In most of the towns the town officials had only a rough idea of how efficiently their water department was operating; in other towns they had no idea at all. Operation records in some cases were so sketchy as to give only the minimum of information and, in a few cases, they did not even exist.

Of the 14 towns investigated, three reported an income but no accumulated profits; three reported no income, and one reported a deficit. The three reporting no accumulated profits were supporting nearly every other branch of the town government. The three reporting no income had unnecessarily high expenses due to inefficient operation. The one reporting a deficit was grossly mismanaged.

In the town reporting a deficit, only slightly over half the services were metered, and many of the meters were not in working order. Many consumers had not paid their water bills for some time and the total unpaid amounted to several hundred dollars. No attempt was being made to collect these bills. Meanwhile, taxes were levied to meet the deficit incurred through the excessively high operating expense.

Improvements Often Blocked

The survey disclosed that in many towns the operator of the water works was vitally interested in trying to correct many of the weak points. The water department officials, however, did not understand his problems, thus making cooperation between them impossible. In one town called upon, the operator had for some time been trying to convince his board of water commissioners that a survey should be conducted to locate leaks. He knew that great amounts of water were being lost each day. He wished to repair all these leaks, thus saving the town an estimated 50% of its total pumpage. The board members were not interested because they did not understand the seriousness of the situation. An operator in another town reported that his officials were content merely to collect the water revenues and to pay the expenses. If, at the end of a year, a profit was realized, it would be transferred to any other fund in which it was needed. If a deficit occurred in the water works, money would be obtained from general taxes to cover it. These are two cases of poor management due solely to misunderstanding of the problem.

This survey showed that the water services in the smaller towns were earning equally well or better than some of the larger services on a per capita basis, although the smaller towns tend to have their water rates somewhat higher. This was emphasized by the fact that while the largest town (population 5,000) was earning an annual net income of $10,000, or $2 per capita, a town of 800 persons earned $2,300, or $2.88 per capita. Either of these amounts, earned over a period of a few years, would do much toward the improvement of the water system in its respective town.

Leakage Studies Needed

Several operators who had no accurate figures on leakage, estimated their losses at approximately 50% of their total pumpage. One town with a population of 3,000 persons had an average leakage of 8,000,000 gallons per quarter. This amounts to 35% leakage. One operator, representing the extreme, could account for only 7% of the water being pumped when he first began checking. This has been corrected to a point where he can now account for over 60% of his pumpage, and he is still repairing leaks.

Boom Replaces Bucket on Front-End Loader

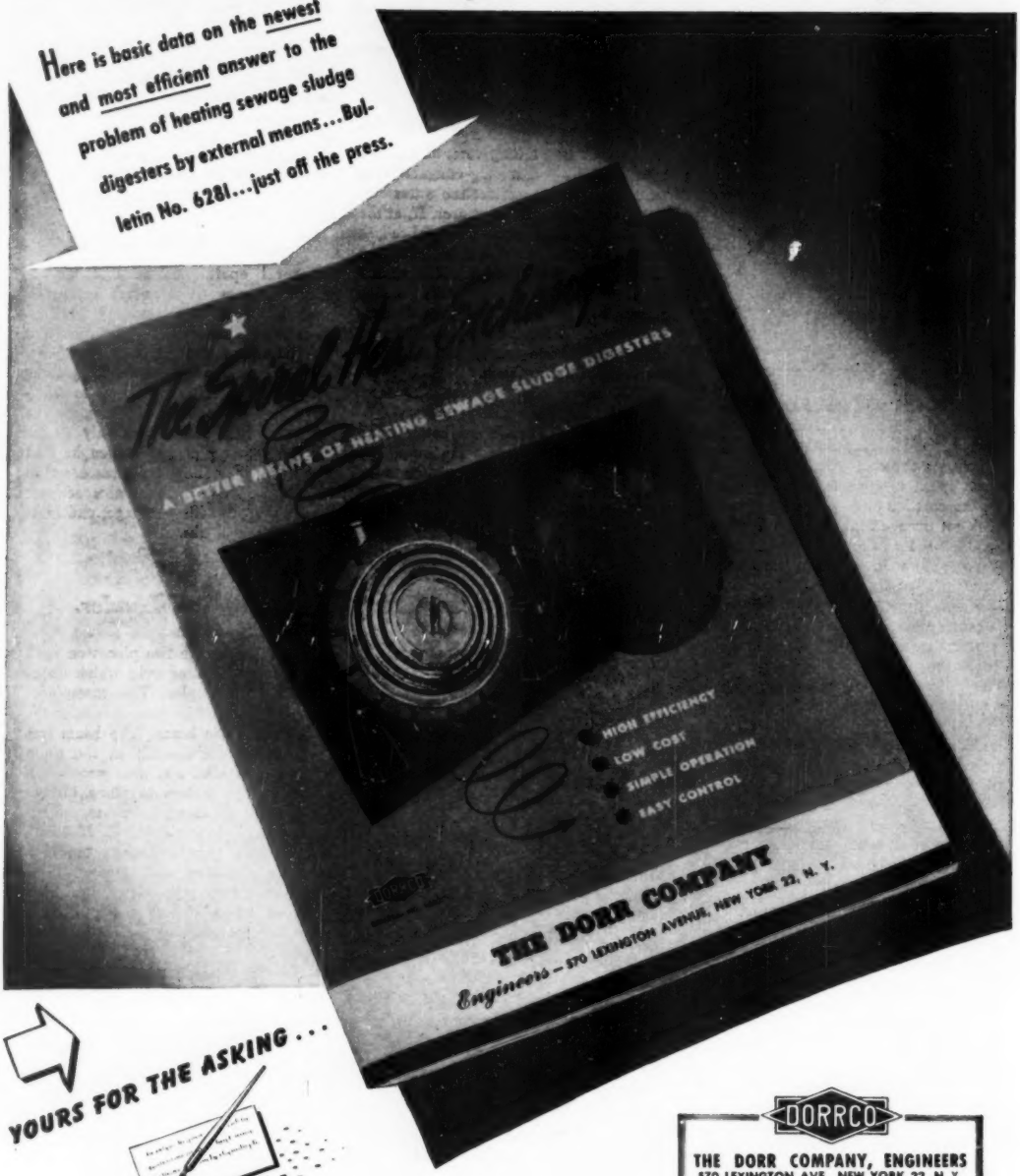
W. P. HOLLAND Company, of Houston, Texas, can switch from scoop to short-boom crane operations in a few moments by pulling and replacing four pins. Where the bucket of the Hough loader fastens to the hydraulically controlled lifting frame, Holland has made a cantilever beam with a framework built up from 2-inch pipe to make the connection.

Many designs may be used to make the boom attachments; few of them will be found on a drawing board—and Holland's arrangement is no exception. The welder started by fashioning a clevis on the ends of four pieces of 2-inch pipe, and made the two pieces on each side meet in a miter weld which forms the apex of triangles. Two crosspieces were then welded in place to fasten the back end of the beam. The beam was then braced additionally at the point of greatest strain, and eyes were welded along the bottom to allow hitches to be made all along the beam.

In the photograph, A. C. Mitchell, Construction Superintendent for Holland, is directing the removal of a small cast iron pipe which has been replaced by a 16-inch water line to serve the growing areas of this metropolis.

Interested in sewage sludge heating?

Here is basic data on the newest and most efficient answer to the problem of heating sewage sludge digesters by external means... Bulletin No. 6281... just off the press.


A BETTER MEANS OF HEATING SEWAGE SLUDGE DIGESTERS
HIGH EFFICIENCY
LOW COST
SIMPLE OPERATION
EASY CONTROL
THE DORR COMPANY
Engineers — 570 LEXINGTON AVENUE, NEW YORK 22, N. Y.

YOURS FOR THE ASKING...

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DORR
RESEARCH ENGINEERING EQUIPMENT

Sewerage and Sewage Treatment

No Sewage Treatment Plants for Seattle, Wash.

DILUTION of sewage in Puget Sound, if vented at recommended depths and locations, will provide public-health safety, protection of fish and aquatic life, prevention of nuisance, and protection of bathing beaches and recreational areas in Seattle, Wash., the present population of which is 480,000. This is the opinion of Dr. Abel Wolman, professor of sanitary engineering at Johns Hopkins University, who recently issued a report on Seattle's sewage treatment and disposal.

This report discloses that the estimated outlay of 15 to 20 million dollars for sewage-treatment plants will not be required. Certain improvements in the existing system are required, however, Professor Wolman reported, if dilution is to work satisfactorily. The existing outfalls into Puget Sound should be extended into deep water, a depth of 75 feet below mean low water being suggested for the largest outfall, which is 12 feet in diameter and serves about 10,000 acres of territory with a population of 260,000. The delivery of three times the dry-weather flow at this outfall is recommended, together with the installation of comminution facilities.

Chicago District Adopts Own Air-Diffuser Design

ACTION of the Superior Court of Cook County made it possible for the Sanitary District of Chicago to accept bids on an air-diffuser system of its own design, despite the efforts of the manufacturer of a patented device to have his system included in the bidding. In selecting the design of the air-diffuser system to be used in the large addition to its West-Southwest Sewage-Treatment Works, the engineers of the District based their decision on the results of large-scale operating tests extending over three years and covering several types of diffusers including the patented device. Those tests showed that with the clean air supply now available, the system used for several years by the Sanitary District was the most dependable and would give the longest service without cleaning. Estimates showed it would be the lowest in first cost and maintenance.

The manufacturer of the patented device tried to force the District to specify its system as an alternate. On the date bids were received, a taxpayer filed suit in the Superior Court to restrain the Trustees from accepting the competitive bids on the specified system or awarding a contract thereon, and demanding a mandatory injunction compelling the Trustees to prepare new specifications and plans to include the patented air-diffuser system manufactured by a local taxpayer.

The Court directed that matters remain in status quo until further orders, and the Sanitary District thereupon impounded the bids received. It was the position of the Sanitary District, sustained by the Court, that there was no legal basis for the action because the remedy sought would:

1. Interfere with the proper discretionary actions of the Trustees and Officers of the Sanitary District in their duties as public officials.

2. Would compel the Sanitary District Officials to perform actions in conflict with and in violation of their legal responsibilities.

3. The complaint failed to allege a clear legal right to the mandatory injunction sought by the complainant.

Federal Pollution Control Board Selected

THE appointments to the Water Pollution Control Advisory Board are now complete, according to the Federal Security Agency. The Board came into existence under the provisions of the Water Pollution Control Act, and has as its members five men from governmental positions and six from outside the government named by the President. The members of the Board are:

Mark D. Hollis, Assistant Surgeon General and Chief Engineering Officer of the Public Health Service. Mr. Hollis will serve as Chairman of the Board.

Hugh M. Arnold, Lieutenant Colonel, Army Corps of Engineers. Colonel Arnold is Executive Officer to the Assistant Chief of Engineers for Civil Works.

Milton C. James, Assistant Director, Fish and Wildlife Service, Department of the Interior.

James W. Follin, Assistant Administrator, Federal Works Agency.

Ralph R. Will, Administrative Officer, Office of the Secretary, Department of Agriculture.

Thomas A. Berrigan, Chairman, Merrimack Valley Joint Sewerage Board, Boston, Mass.

L. A. Danse, Chairman, General Motors Industrial Waste Committee, General Motors Corp., Detroit, Mich.

Dr. Stanley B. Freeborn, Assistant Dean, College of Agriculture, University of California, Los Angeles.

Michael Klein, Chief Engineer, Office of the President, Borough of Manhattan, New York City.

Carl D. Schoemaker, Conservation Director, National Wildlife Federation, Washington, D. C.

N. T. Veatch, Black & Veatch, Consulting Engineers, Kansas City, Mo.

The Board will serve as the chief advisory group in helping the Surgeon General carry out the provisions of the law.

Under the new law the Surgeon General of the Public Health Service is to coordinate activities among the states and the interstate agencies and to provide financial and technical assistance in formulating and executing their water-pollution-control program.

.79 mgd by Single-Stage Biofiltration

Loveland, Colo., plant, treating an average flow of .79 mgd of domestic sewage by single-stage biofiltration with Dorr equipment—a 45-foot-diameter Clariflocculator, a 60-foot-diameter distributor, and a 35-foot-diameter clarifier.

"KEY PEOPLE"—*When You Need Steel*

Ryerson's function is not only to supply your steel, but to deliver it on time. From the moment the Ryerson switch-board flashes your incoming call until the steel is laid down in your plant, a corps of helpful, intelligent employees well-trained in the Ryerson "Immediate Steel" tradition are at your service.

•The likeable young women at the switch-board, phone-order salesmen, dispatchers, crane operators, skilled warehousemen who cut, shear and shape stock sizes to fit your specification, truck drivers—all of them are key people at Ryerson—key people in your service, when you need steel!

In spite of shortages, we are putting forth every effort to serve all Industry to the best of our ability. Naturally, many sizes and certain products are out of stock. However, for the most part you can depend on Ryerson for immediate shipment of a wide range of steel products.

PRINCIPAL PRODUCTS

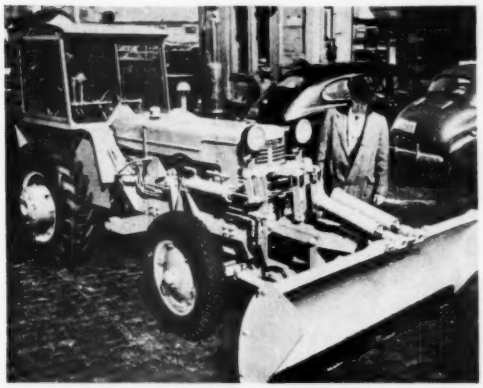
Bars—hot and Cold rolled	Mechanical Tubing	Tool Steel
alloy steel	Boiler Tubes and Fittings	Wire, Chain
reinforcing	Allegheny Stainless—	Bolts, Rivets
Structurals	sheets, plates, shapes,	Babbitt
Plates—	bars, tubing, etc.	Metal Working Tools
Inland 4-Way Floor Plate	Sheets and Strip Steel	& Machinery, etc.

JOSEPH T. RYERSON & SON, INC., Plants: New York, Boston, Philadelphia, Detroit, Cincinnati Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco.

RYERSON STEEL

Street Cleaning and Refuse Disposal

New Sanitation Equipment for New York City



A cross-walk plow designed by New York City's E. A. Donnelly. The plow is mounted on an International tractor.

Sanitation officials test a Sicard snow blower on a pile of sawdust in a warm-weather demonstration.

Incinerator Operation And Use

IT COSTS $1,500 to $2,500 per ton of 24-hour capacity to build a modern incinerator, and $.50 to $1.50 per ton to operate it. This was one of the points brought out by Professor Rolf Eliassen, of New York University, in his report on modern refuse disposal delivered at the recent American Society of Civil Engineers' annual meeting in New York. Professor Eliassen was chairman of a committee on refuse collection and disposal.

Of the incinerators in use today, 12% have been abandoned in favor of landfill operation.

The useful life of an incinerator can be judged by a study of those taken out of service in the last 10 years. Professor Eliassen's committee found 98 incinerators taken out of use. Of these, 71 had been in use for 15 years or more; 39 for 20 years or more, and 9 for 30 years or more.

This history of incinerator construction in the United States is reported to be in accordance with the following:

Year Built	*Per Cent*
1890–99	1
1900–09	7
1910–19	12
1920–29	40
1930–39	25
1940–48	15
	100

Of modern developments in incinerator design, mechanical stoking using the circular furnace is one of the most pronounced. This uses a slowly revolving cast iron cone and stoking arms. Air is introduced through the cone to aid in the burning.

The conventional burning rate used for the design of most incinerators has been 50 pounds per hour per square foot of inside furnace area. However, the use of these improved stoking arrangements has led to a change in this factor. In Winnipeg, Canada, the designers used 78 pounds per hour, and at Tonawanda, N. Y., 112 pounds.

Operating Savings With Mechanical Sweeper

PAUL'S VALLEY, Okla. (population 10,000), figures that it is saving $367.50 every month by using a new Wayne sweeper rather than sweeping the streets by hand. Here are the comparative figures:

Sweeping Streets by Hand
(Former Method)

8 men, 8 hours per day, 12 times per month—768 man hours.	
Monthly Labor Cost:	
768 hours at 75 cents	$576.00
Depreciation (monthly):	
Brooms, shovels, (estimate)	16.00
Fuel, etc. (estimate)	5.00
Actual wear on equipment (based on 10-year period)	40.00
Totals per month	$637.00

Sweeping Streets with a Wayne
(Present Method)

1 man, 8 hours per day, 4 times per month—32 man hours.	
Monthly Labor Cost:	
Monthly wage averages	$175.00
Depreciation (monthly):	
Brooms, etc. (estimate)	19.50
Fuel, etc. (estimate)	15.00
Actual wear on equipment (based on 10-year period)	60.00
Totals per month	$269.50
Monthly savings afforded	$367.50

The Old and the New in El Paso, Texas

Contrast of refuse collection in El Paso, Texas (population estimated at 130,000, 1948). At left is one of the historic old World War I Liberty trucks. Used for years, ever-mounting costs of maintenance retired and replaced them (right) with a fleet carrying 15-yard Gar Wood Load-Packer bodies. Superintendent Muckelroy uses them for city-wide, twice-a-week minimum collection.

Easy does it – with ADAMS

1 Positive Mechanical Control System Provides Fast, Accurate Blade Adjustments.

2 Push-Button Starting From Cab —Assures Quick, Easy Starting In All Weather.

3 Good Visibility Gives Operator Always Clear View of Blade and Work.

4 Efficient Steering Gear and Improved Front Axle Design Makes Steering Easy.

Easy operation in a motor grader involves both ease of physical effort and ability of operator to get blade adjustments wanted—quickly, positively—and then being able clearly to see work in progress. That's why the easy operating advantages of Adams Motor Graders (as shown above) are so important. Other advanced Adams features include generous blade clearances—high-arch front axle—convenient control levers—standing or seated operation. For complete information, see your local Adams dealer.

Adams

MOTOR GRADERS • LEANING WHEEL GRADERS • ELEVATING GRADERS

Street Construction & Maintenance

How Should One Specify Rolled Fill?

TWO recent articles showed the emphasis which is being placed on careful soil compaction by modern engineers. One covered the big, important Houston, Texas, expressway. The other involved the Baltimore, Md., airport. (See pages 116 and 102 of the November issue.)

In the first article, Texas Highway Department engineers, building the expressway on an unstable foundation, called for the entire fill to be rolled to a density equal to the maximum reached at optimum moisture content determined in the Proctor test; in other words, to "100% Proctor." In the second article Whitman, Requardt, Griner and Associates, Baltimore, consultants for that city's new airport, specified the number of passes and the type of rollers to be used when building the airport runway. They also wound up the operations by rolling the fill with the awe-inspiring "supercompactor," thus subjecting the fill to a heavier load than any they anticipate landing on it—a simple and straightforward final test.

This brings to the fore two thoughts: is it better engineering for the engineer to tell the contractor what results he wants and let him produce them in his own way? Or is it better for the engineer to tell the contractor what to do and have the engineer back the results with his reputation?

There are precedents for both. We all are familiar with the concrete specification calling for a strength and allowing the contractor to design his own mix. However, when quantities get to be large and it is touch-and-go as to who gets the job, generally the contractor and the client are happy to have the engineer decide what mix is to be used and how it is to be laid.

It is a fair guess that the same situation prevails in soil mechanics. Where there is a lot of earth to be handled it is fairly safe to say that the contractors would prefer the engineer to tell them how often he wants each lift rolled and with what sort of equipment.

Then we come to that subject of "100% Proctor." Texas specified it for its fill. But does this density figure mean anything in structural value? Obviously it does not. It means only that the soil particles have been packed as closely as they were in a small cylinder under certain laboratory conditions. Sometimes it is attained easily. Sometimes it is not. It is not a measure of structural strength. As a matter of fact, with the mix packed to the required density and the moisture of the mix close to the optimum figure, you have a relatively unstable mass. Everyone is familiar with the fact that the soil does not gain structural stability until its moisture drops back to about 75% of the optimum figure.

But with the big "supercompactor" you know that the road, the expressway, the runway will carry the load. You know because it has done it.

The Houston expressway is a fine piece of construction of which the State of Texas can be proud. But the Baltimore airport has one or two features on rolled fill construction that we all probably can examine more closely to our profit.

Springfield, Mass., Forces Improvement of 32 Streets

CITY-OWNED asphalt plant and city-owned paving equipment made it possible to improve more than 32 streets in Springfield, Mass. (population 149,642, 1940 census), by the Department of Streets and Engineering last year.

The work, under the direction of Charles A. Bailey, Jr., Superintendent, covered an extensive hot-mix program and entailed the use of 25,000 tons of bituminous concrete and sheet asphalt produced in the city's plant.

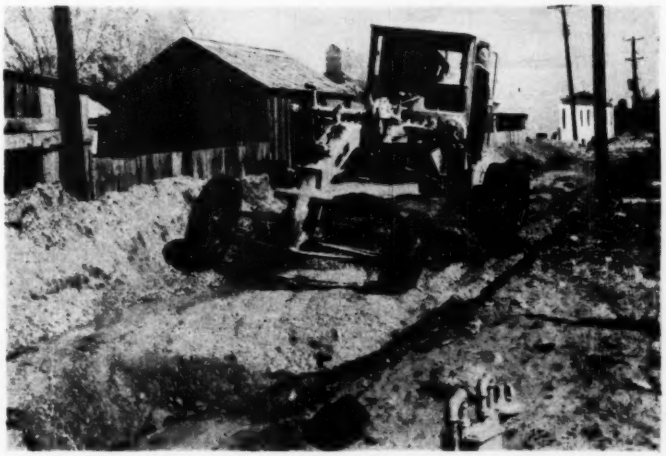
Resurfacing work was carried out on Main Street, a principal business thoroughfare, and also on a number of other heavily traveled arteries. These streets, formerly street railway car routes, were covered from curb to curb.

A "shim" coat was first laid in the car tracks and in any low area. Two city-owned Adnum pavers then laid a bituminous concrete surface over this, varying in depth from 2 inches in the center to 1 inch near the gutters. The gutter grades of the old pavement were not disturbed, so the sheet asphalt top was laid from the existing gutter line to meet the new surface. The bituminous concrete was a modified Massachusetts State Type I-1 specification.

State funds were allotted for improving about ¾ of a mile of pavement used for a state-numbered route. The old peneration macadam base was removed, a new gravel sub-base laid, and a 3-inch asphalt penetration macadam base constructed. A one-course wearing surface of bituminous concrete was then laid to a depth of two inches.

The work also includes paving 3.5 miles of residential streets at a cost of $275,000. These 32 streets, which were private and are now public, were edged with granite curbing and constructed of asphalt penetration macadam.

Dual Role for This Motor Grader



Portales, N. M., uses its Caterpillar diesel No. 112 motor grader not only for backfilling sewer ditches, but also to maintain its 70 miles of city streets.

WHY CITIES PREFER GAMEWELL
SIMPLICITY OF OPERATION

When she observed a fire in a nearby factory in Dorchester, Massachusetts, eight year old Thomasina De Beneditto knew exactly what to do -- *So she pulled the box and called the Fire Department.* She shows, in the illustration, how she operated the box.

The method of operating

GAMEWELL
FIRE ALARM BOXES

is simple,

easily understood even by children,

and

contributes to speed in sending alarms

TRADE MARK
GAMEWELL
REG. U.S. PAT. OFF.

GAMEWELL
FIRE ALARM BOXES

GAMEWELL fire alarm boxes, promptly used when fire occurs, will save property -- and may save human lives.

We invite your inquiry.

THE GAMEWELL COMPANY
NEWTON UPPER FALLS 64, MASSACHUSETTS
IN CANADA: NORTHERN ELECTRIC COMPANY, LTD., MONTREAL

Public Safety

Need a Better Building Code?

COMMUNITIES looking for a good way to modernize their building codes will do well to consider adoption of the new National Building Code, 1949 Edition, recommended by the National Board of Fire Underwriters. A suggested ordinance for use in adopting the Code by reference is published with the Code.

Insofar as is practicable, within the limits of public safety, the Code allows the use of any material, type of assembly, method of construction, or style of architecture that meets the required standards of strength, stability, and fire resistance.

The 1949 National Building Code contains the latest nationally recognized working stresses for steel and lumber. It recognizes the new modular sizes of brick. It recognizes open-air parking garages and covers their construction and protection. It permits the use of prefabricated flues in place of masonry chimneys, provided they are listed by Underwriters Laboratories, Inc., are installed in accordance with the listing and the manufacturer's instructions, and the proposed use is acceptable to the building official.

Installation of heating appliances, incinerators, and air-duct systems are covered by a brief section.

There are 13 appendices which give supplementary information. Appendix A, giving fire-resistance rating of walls and partitions; column, beam, girder, and truss protections, and floor and roof constructions, has been greatly expanded with addition of much new data. A new appendix gives supplementary provisions for use in areas subject to hurricane damage.

This Code should be a valuable reference book for every building official, architect, structural engineer, and fire chief. Any person concerned with building construction may obtain a copy without charge. Any community adopting the Code will be supplied with 25 free copies.

First Nation-wide Police-Radio Network

THE first central station and mobile unit of what is to be a nationwide police-radio communication system has been installed in Ciudad Trujillo, capital city of the Dominican Republic, says Philco Corporation of Philadelphia, Pa.

The Dominican Republic is believed to be the first country in the world to install a complete, nationwide police-radio network. Central-station transmitters will be installed in key points of the Republic, and all of the mobile units, such as patrol cars and emergency vehicles, will be equipped with two-way radio.

The first central station was installed in the new General Headquarters building. When completed, this building will be one of the finest and most complete police buildings in the world. In addition to radio, it will be equipped with modern and efficient laboratory equipment.

Philco microphone on the dashboard of a Dominican Republic police radio car.

Drunks, Speeders, and Accidents

THE BIGGEST factors militating against highway safety are drunken driving and speeding, according to the attendance at New Jersey's first judicial conference for traffic court judges and prosecutors held at Trenton on December 1-2. Some put speeding first, as there are 50,000,000 potential speeders against 50,000 to 200,000 drunken drivers. Just as many, however, put drunken driving first.

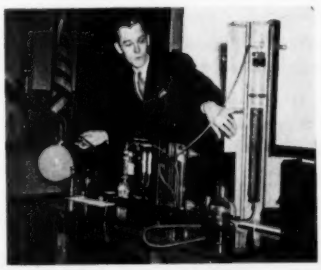
Abolish "fix," was the fundamental counter measure urged. Even where public officials favor strict enforcement, public support through education is essential to continuing results.

New Jersey's Motor Vehicle Commissioner Magee urged fines sufficient to pay for the full cost of enforcement. Of the 19,759 cases handled in 1947, fines totaled $167,660 against enforcement costs of $262,335. He put speeding as the first cause of the state's 27,863 accidents. The runners-up were offenses like following a car ahead too closely, failure to grant right of way, driving on the left side of the road, and improper training of the driver.

On the second day the problem of drunken driving was thrashed out very thoroughly. The difficulty is to establish drunkenness. Where the officer in the car or on a motorcycle has little difficulty in proving speeding, the proof of intoxication has been hard indeed or at least until the drunkometer was made available. This device, perfected by Dr. Rolla N. Harger of the University of Indiana School of Medicine, was demonstrated to the judges.

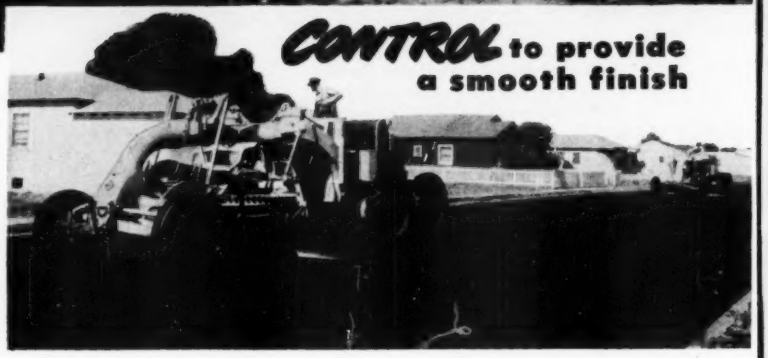
The accused driver inflates a small balloon. This air is passed into a bubbling tube containing a solution of potassium permanganate and sulphuric acid, which has a purplish color. Air without alcohol will not change the color, but an alcoholic breath will.

The big question is: "Does that mean the man's drunk?" Not yet; he's drunk when his breath contains 0.15% alcohol. The borderline of 0.05 to 0.15% indicates consumption of 6 to 7 ounces of whiskey or 6 to 7 bottles of beer. Over that he or she is overboard. The drunkometer, which determines percentage, is sold by the Stephenson Corporation, Red Bank, N. J., and all the information required for the use of this compact chemical laboratory will be furnished by the company.



When the breath in the balloon takes the purple out of the chemical in the tube, the driver has been drinking. The Drunkometer then computes whether he is over the critical 0.15% alcohol.

POWER to mix a big windrow



CONTROL to provide a smooth finish

HEAVY-DUTY model AD-4 has everything you want in a Motor Grader

POWERFUL— 104 brake hp. . . . famous General Motors 2-Cycle Diesel Engine . . . dependable, economical, instant-starting.

HEAVY — 22,140 lbs. effective weight . . . balanced for maximum traction and control.

STRONG— exclusive tubular frame . . . absorbs shocks, protects control rods inside frame.

ACCURATE— blade held firmly on road through direct down pressure . . . cuts smoothly, within fraction of inch of desired depth.

HIGH CLEARANCE— over 30" throat clearance for handling bigger windrows without interference.

TRAVEL SPEEDS— smoothly synchronized with operator controls . . . all the needed power applied as required.

"ROLL-AWAY" MOLDBOARD— less power required to handle bigger windrows at faster speeds. Material is rolled, not pushed.

FULL CIRCLE REVOLVING BLADE— swings *ahead* of platform with plenty of end clearance.

FULL RANGE OF BLADE POSITIONS— plus leaning front wheels, for handling all types of grading with ease. Blade can be shifted, too, to a maximum of 40" right or left.

ELECTRIC BRAKES— Control positive, operate with less effort than auto brakes.

PLUS . . . Easier Steering, Larger Clutch, Electric Gauges, Full Visibility and many other outstanding advantages.

OTHER DIESEL-POWERED SIZES

Model AD-3 - 78 brake hp.; 21,835 lbs.
Model BD-3 - 78 brake hp.; 19,042 lbs.
Model BD-2 - 50.5 brake hp.; 17,772 lbs.
(Same Proved Design As AD-4)

GASOLINE-POWERED

Model W-Speed Patrol
31.5 brake hp.; 6,000 lbs.

ALLIS-CHALMERS

TRACTOR DIVISION . . . MILWAUKEE 1, U. S. A.

Airports and Aviation

CAA Offers Accounting Program

OF INTEREST to all city officials concerned with the financial activities of municipal airports is the advisory program in the field of airport accounting maintained by the Civil Aeronautics Administration. This program has been undertaken to emphasize the commercial aspects of the municipal airport and the resulting need for more commercial-like practices in its accounting procedures.

Standardization of accounting procedures is not the objective of this program, because of the recognized differences among airports and their owning municipalities. The CAA program undertakes to make uniform the manner in which airports report their financial operations and conditions, which will indirectly affect the manner in which financial information is collected and recorded.

MANUAL GIVES GUIDANCE

To this end the CAA has recently published a manual entitled "Airport Financial Statements," which presents the type of financial statements it recommends for airports, which have been designed in cooperation with the American Institute of Accountants and the Municipal Finance Officers Association. The principles and statements set forth in this manual are recommended for all airports, although they are particularly useful to those airports participating in the Federal-Aid Airport Program in reporting their financial activities to the CAA.

AIRPORT STATEMENT

The manual presents an airport "statement of income and expense" and an airport "balance sheet." In general these statements are of orthodox design, although they have been modified to fit the peculiarities of airports. For example, the income statement lists various types of revenue-producing activities at airports and classifies them as to whether they are of an aviation or accessory nature.

The balance sheet is modeled after public-utility balance sheets whereby fixed assets and investments are shown ahead of current items. Provision is made in the balance sheet to show in memorandum form those fixed assets that have been acquired through grants-in-aid from higher governmental agencies separately from those provided by the owning municipality.

Each of these statements is analyzed by a group of work sheets. The work sheets provide listings of the items that go to make up various sections of the statements and assist in the classification and computation of various amounts and totals. The work sheets provide account titles that may be used in the designing of a chart of accounts, and the expense classifications have been functionalized to provide for the coordinated use of a cost-accounting system at larger airports.

ROBERT M. POOL
Robert M. Pool and Associates
Airport Accountants

Expressways to Airports Needed

IF LARGE cities built modern expressways between their business centers and their airports, travel time to and from their airports would be cut about one-third. So reports W. R. Macatee, manager of the American Road Builders' airport division in a recent survey. His study uncovers the following points.

1. Forty-nine of the 59 airports surveyed are 20 minutes or more from the centers of the cities which they serve; 23 are 30 minutes or more from the city. Proposed expressways could cut this travel time an average of one-third.

2. Seventeen of the airports surveyed are 10 miles or more from the adjacent city. Forty-six are more than five miles "from town."

3. More than 20 traffic-control lights slow driving time on 11 city-to-airport highways surveyed; 10 or more traffic lights dot the route on 27 highways. Fifty-eight traffic lights plague the traveler airport-bound on the highway leading from downtown New York to International Airport, and 39 line the road to LaGuardia Field.

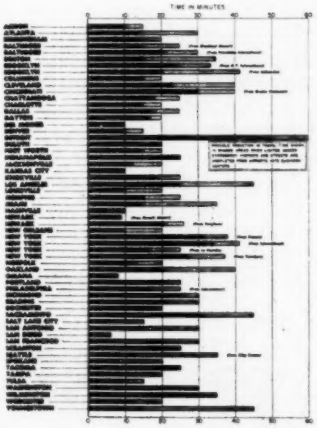
It takes an air traveler 54 minutes in the air to get from Detroit to Cleveland, but it takes him 100 minutes, *nearly twice as long*, to complete the ground trip *to* and *from* the airports in the two cities.

The air route between Los Angeles and San Francisco is a two-hour air journey. But travelers making the trip must also figure in the 75 minutes it takes to cover the 26 miles of highways which connect the airports with their downtown areas.

Los Angeles plans to cut off approximately 21 minutes — or nearly 50% — from the 45 minutes currently required in ground travel from its principal airport to business center of the city. Present estimates also call for reducing the travel time, now 30 minutes, some 40% between the center of San Francisco and its new airport, making travel time 18 minutes for 12 miles of connecting highway.

Detroit has two alternatives for solving its problem. One, now in process of completion, is the development of the Wayne County Major Airport, which will whittle off 14 miles from the 32 it now takes to travel to Willow Run Airport. State highway engineers are busy executing a five-year plan which will provide an expressway-type highway through the very heart of Detroit to its major airports.

Another plan is to develop an airport across the Detroit River at Windsor, Canada, making travel-time 10 minutes between Cadillac Square and the Windsor International Airport, a sensational reduction from the 60 minutes now required, during peak hours, between downtown Detroit and Willow Run.



Travel-time required between principal airports in cities listed and their downtown business centers.

CUT YOUR COMPRESSOR OPERATING COSTS

Use Texaco compressor oils and keep valves clean — pressure up

FOR compressors of every type and size, and for every operating condition, there is a Texaco oil that will keep valves clean, and assure full volume and pressure with minimum cost for upkeep.

For *normal* operating conditions, use *Texaco Cetus, Alcaid or Algol Oils*. They are highly refined, specially processed oils that won't form harmful carbon or gummy deposits. They assure clean valves, free rings, open ports and clean air lines – are used by operators the world over.

For compression of *wet* air, use *Texaco Regal Oils (R & O)*. These turbine-grade oils give full protection against wear and, in addition, guard against rust even during idle periods and in intermittent operation.

Protect your drills by using *Texaco Rock Drill Lubricants EP*.

Keep hydraulic systems free of sludge and rust by using *Texaco Regal Oils (R & O)*.

A Texaco Lubrication Engineer will gladly help you select the Texaco lubricants you need for best results. Call the nearest of the more than 2300 Texaco Wholesale Distributing Plants, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

USE TEXACO'S SIMPLIFIED LUBRICATION PLAN. You can save time, cut costs and assure more efficient operation of all your heavy construction machinery by using the Texaco Simplified Lubrication Plan. It enables you to meet *all* your lubrication requirements more effectively — and more economically — with *less than a dozen* lubricants!

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

Tune in . . . TEXACO STAR THEATRE presents MILTON BERLE every Wednesday night. See newspaper for time and station.

Check Your Wants and Mail Coupon

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write directly to the manufacturers, or circle the identifying numbers on this coupon and mail to THE AMERICAN CITY MAGAZINE, 470 Fourth Ave., New York 16. We will see that catalogs are sent to you without expense or obligation.

4/49

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Name ..... **Position** .....

Address .....

Portable Electric Generators For On-the-Spot Power

625 Any municipality that has power-driven equipment—for running mowers, fighting fires, repair, maintenance, and construction work—should have a portable supplier of power. D. W. Onan & Sons, Inc., 5486 Royalston Ave., Minneapolis 5, Minn., makes a line of gasoline-powered electric generators from 350 to 35,000 watts, and diesel-engine models from 2,500 to 35,000 watts that will fit these needs.

½-Yard Crane Moves Fast

626 The Koehring 205 ½-yard Cruiser crane mounted on rubber tires, is also available on truck mounting or crawlers; the Cruiser travels 6 mph; truck-mounted it moves at a speed of 35 mph. The 205 has independent traction, and swings, hoists the load, and changes the boom angle while it travels so that move-ups are no longer unproductive. Write to the Koehring Co., Milwaukee 10, Wis., for data about the ½-yard 205, the ¾-yard 304, the 1½-yards 605, and the 2½-yards 1005.

Reduce Pipe Handling Costs

627 The Bucyrus-Erie Hydrocrane cuts down man-power requirements while quickening pipe-laying work. Truck-mounted, it may be used with a clamshell bucket or as a crane. It is built in two sizes, the 2-ton, ¼-yard Model H-2 and the 3-ton, ⅝-yard Model H-3. Write for a bulletin to the Bucyrus-Erie Hydrocrane Div., 7923 W. Greenfield Ave., Milwaukee 14, Wis.

Sewage Treatment Costs Can Be Reduced

628 Cloroben not only kills foul smells frequently emanating from sewers, but also checks sulfide generation that destroys many sewers, while delivering sewage to the plant that is easier to treat, thus boosting the plant's capacity. Write The Cloroben Corp., 15 Exchange Place, Jersey City 2, N. J.

Cut Grass the Modern Way

629 The Jari power scythe, one-man operated, cuts four to six acres of grass, weeds, and underbrush on 5 quarts of gasoline per eight-hour day. It trims closely around walls, posts, and other obstructions and cuts clean under fences or guard rails. Forward drive may be disengaged instantly for work in close quarters. Write for literature to Jari Products, Inc., Minneapolis 8, Minn.

Keep Streets Clean With Refuse Container

630 If refuse containers are used, the problem of keeping streets refuse-free can be controlled. The Wheeling Corrugating Co., Wheeling, W. Va., will send you information about its refuse receptacles made of one-piece expanded metal body in an attractive color. The container has an all-weather coating, and a wide-open top.

High-Speed Street Patchwork

631 The Standard Steel S-J is a trailer-mounted pressure distributor that is economical to operate on all maintenance jobs for street repairs or airport strip construction. The machine either lays the product directly, or a hose may be attached from the tank to a hand sprayer for manual laying of the mix. Write for Catalog S-J to the Standard Steel Works, North Kansas City, Mo.

Eliminate Night-Time Hazards With Efficient Lighting

632 Union Metal Tapered steel lighting standards help protect lives and property by providing the proper mounting heights for peak lighting efficiency. Designed to distribute light on the street rather than fanning it out unnecessarily, the standard requires a minimum of maintenance. Write for data to The Union Metal Mfg. Co., Canton 5, Ohio.

Machines for Compacting

633 For information on high-frequency compacting of concrete or of soil, write Vibro-Plus Corp., 242 W. 53rd St., New York 19. In addition to these new compactors, this company sells vibrating screens, troughs, spades, and tampers.

Free Survey on Voting Machines

634 Many towns, cities and counties are sold on the convenience and quick election returns of voting machines but would like to know what the total cost would be. A survey to determine savings in election cost possible in your community will be made upon request—without cost or obligation. Write Automatic Voting Machine Corporation, Jamestown, N. Y.

Distinct Street Signs

635 If the street signs in your municipality are inadequate, dingy, weatherbeaten, indistinct, or poorly located for easy visibility, write for the Grote manual of street signs—sturdy, highly readable, easy to install, weather resistant; The Grote Mfg. Co., Inc., Bellevue, Ky.

Save Time, Money With Aerial Mapping

636 On mapping work that the Aero Service Corp., 236 E. Courtland St., Philadelphia 20, Pa., does, the cost is less than half, and the time expenditure about 1/50 the time used by a previous plane table mapping method. Of help in planning streets, sewers, freeways, traffic and zoning layouts, the maps are of rigid engineering accuracy.

Shock-Proof Service Boxes

637 Valveo service boxes have cast-iron covers and flanges; all other component parts with the exception of the brass locking device are made of Orangeburg pipe. They accommodate up to 3-inch-diameter service pipe and can be used in varying trench depths since the shaft can be sawed with an ordinary coarse-tooth wood-working saw. Write Valveo, Ltd., 57 William St., New York 5, N. Y.

Need Filter Sand and Gravel?

638 Write the Northern Gravel Co., P. O. Box 376, Muscatine, Iowa, for information about filter sand and gravel produced from an inland pit. The company can provide prompt delivery of clean, well graded filter media that will insure excellent filter plant operation.

Automatic Hydra-Shovel Gives Crowd and Hoist Action

639 The Dempster Diggster shovels and loads any type of material with an independent crowd and hoist action, and digs solid earth 15 feet above and 15 inches below grade. This rubber-tired automotive shovel excavates, stockpiles, loads, and is one-man operated. Write for information to Demp-ter Brothers, Inc., 839 Dempster Bldg., Knoxville 17, Tenn.

Playground Equipment

640 The Standard Playground Equipment Co., Anderson, Ind., manufactures equipment for playgrounds and swimming pools: child-power merry-go-rounds, see saws, slides, swings, climbing towers, basketball backstops. A catalog will be sent upon request.

In Water Analysis

641 The Klett Summerson electric photometer can be used for any determination in which color or turbidity can be developed in proportion to the substance to be determined; it is particularly valuable in water analysis. Write the Klett Mfg. Co., 179 E. 87th St., New York, N. Y.

(Continued on Page 23)

it's "The Jet" with DC-6 CONTROL
DIRECT CAB

Good Roads MACHINERY

...FOR SEAL-COATING — ICE AND SLEET CONTROL

UMBRELLA SPREAD*

WIDTH OF SPREAD

From 12 to 28 Ft. for Seal-Coating

From 12 to 60 Ft. for Ice and Sleet Control

Capacity 7 cubic yards.

PRICED FOR THE BUDGET OF EVERY COMMUNITY, LARGE OR SMALL

SPREAD ANY MATERIAL

SAND, GRAVEL, LIME, SALT, CINDERS
CALCIUM CHLORIDE, **ANY OTHER DESIRED**

DC-6 CONTROL

Ignition, Starter, Flasher Lights, Clutch, Choke, and Throttle are Fingertip controlled from the truck cab. Fits any truck.

Contact your Good Roads Dealer or the factory for a demonstration or further detailed information.

FEATURES

CHAIN DRIVEN STEEL BELT CONVEYOR . . . . .

The controlled intermittent action shakes materials down through the wide throat onto the twin spinner discs.

WATERPROOF, AIR COOLED MOTOR . . . . . .

Capable of driving the twin spinners at a speed of 2400 r.p.m.'s.

* UMBRELLA SPREAD . . . . . .

Material is confined to a horizontal plane thereby protecting traffic.

GOOD ROADS MACHINERY CORP. MINERVA, OHIO

Your Catalog Supply Service

Please Use Coupon on Page 21

Traxcavators Are Versatile

642 The Traxcavators manufactured by the Trackson Co., Dept. AC349, Milwaukee 1, Wis., may be used for road building, street maintenance, sanitary fill garbage disposal, or removing snow from city streets. The bucket capacities range from ½ to 2½ cubic yards.

Finds Buried Pipe

643 *The M-Scope Pipe-Finder Operating Manual*, put out by the Fisher Research Laboratory, Inc., 1961-63-65 University Ave., Palo Alto, Calif., gives a general description of the M-Scope and its operational principles, and tells how the instrument locates pipe lines, T's and L's, bends, dead-ends, stubs and services, and also shows how to measure the depth and center of the pieces located.

"Husky" Parking Meter

644 Where price is a factor in buying parking meters, get the facts about the Karpark "Husky." Advertised as low-priced, it is of the same family as the Karpark "Superior," both being automatic meters manufactured by The Herchede Hall Clock Company. Write The Karpark Corp., Cincinnati 6, Ohio.

Efficient Power Mowers

845 Gravely power mowing equipment ranges from equipment for the small area to mowers for extensive lawns. One model, the L, reaches under trees, has a reverse to back out of close places easily, cuts with a blade that swivels to follow contours, and may be obtained with extension axles. Write for literature to the Gravely Motor Plow & Cultivator Co., Box 373, Dunbar, W. Va.

Standard Buildings

646 Investigate the standard buildings by Luria custom-tailored to your individual requirements for garages, schools, recreation centers, community buildings, terminals, truck depots, power houses. These structures are permanent with heavy construction and rigid bracing of interior columns and rafters. Write for *Standard Buildings by Luria*, the Luria Engineering Corp., Dept. Y14, 500 Fifth Ave., New York 18, N. Y.

How to Kill Weeds

647 The C. B. Dolge Co., Westport, Conn., makes two weed-killers. Dolge SS sterilizes the soil so that windblown seeds cannot normally sprout. This is for use where no vegetation is desired. The E. W. T. Selective Weed-Killer (2-4D) works down to the roots of dandelions, poison ivy, ragweed, and other plant pests, but does not affect most turf grasses.

Electric Pre-Heater For Hot or Cold Weather

648 The Kim Hotstart is particularly valuable in cold weather, but its installation will prove of value during any season on diesel or gas engines in vehicles being used for short run or start-and-stop work. Write the Kim Hotstart Mfg. Co., West 917 Broadway, Spokane 11, Wash.

Conducting a Municipality Efficiently

649 The Business Research Corp., Consulting Management Engineers, 79 W. Monroe St., Chicago 3, Ill., can tell you how your municipality's affairs can be conducted with a maximum of efficiency and a minimum of time- and money-consuming incon-equentialities. The organization specializes in personnel classification, job evaluation, salary administration, organization planning, budgetary control, and office systems. The organization would be glad to send its booklet on request.

For Seal-Coating, Ice and Snow Control

650 The Jet with DC-6 control spreads sand, gravel, lime, salt, cinders, calcium chloride, or any other medium required for seal-coating or ice and sleet control. Spreading from 12 to 28 feet wide for seal-coating and from 12 to 60 feet wide for ice control, the Jet has a capacity of 7 cubic yards and spreads the material in a horizontal plane, protecting traffic. The DC-6 (direct cab) control means that the ignition, starter, flasher lights, clutch, choke, and throttle are fingertip controlled from the truck cab. Write for information to the Good Roads Machinery Corp., Minerva, Ohio.

Electronic Liquid Level Controls

651 The Faraton Electronic liquid level control operates in open or closed containers and, since it is activated by electronics, neither heat nor cold, steam nor frost, pressure nor vacuum affects its operation. It has no floats, no moving parts, and the electrode current is .00001 amp., less than ½ volt. Write for literature to the Lumenite Electronic Co., 407 S. Dearborn St., Chicago 5, Ill.

Scrapes and Levels Streets, Recreation Areas

652 The new Leveland scraper, adaptable to H & M tractors, J. I. Case VAI and VAO and other tractors with hydraulic equipment, may be used for scraping and leveling streets, parks, playgrounds, roads, and airport runways. The Leveland carries the soil to any desired spot and spreads the soil to any desired thickness without dragging. Write the Western Equipment Mfg. Co., P. O. Box 105, Glendale, Calif.

Immediate Delivery On Cast Iron Pipe

653 Bell and spigot, water-main pipe, Class 150 and 250, in sizes of 4, 6, 8, 10, 12, 20 and 24 inches in 12- and 18-foot lengths are available for immediate delivery from the Sonken-Galamba Corp., 2nd and Riverview (X-123), Kansas City 18, Kans.

Fast Repairs In Floors, Driveways

654 Stonhard Stonfast is removed from the container and tamped into the hole or rut. No tie-up of traffic, since it is instantly ready to withstand traffic and trucking. Write for a free folder to the Stonhard Co., 203 Stonhard Bldg., 1306 Spring Garden St., Philadelphia 23, Pa.

Cribbing Walls With a Minimum of Effort

655 Universal Concrete cribbing walls require no extensive digging, no special provision for drainage. The pre-cast units are easily laid up by unskilled labor and backfilling proceeds as the wall rises. Built in any weather, the walls may be of any height, straight or curved, and offer complete salvage if removed. Write for Bulletin C-49, the Universal Concrete Pipe Co., 297 S. High St., Columbus 15, Ohio

Traffic Line Marker

656 The Mark-Rite line marker requires 5 minutes to set up, 5 minutes to clean, no straining of paint, one unskilled operator to work it. Of aluminum construction with gravity feed, the brush is a special paint-spread type available in interchangeable sizes of 2, 3, or 4 inches in width. Write the Universal Mfg. & Sales Co., 8714 S. Santa Fe Ave., South Gate, Calif.

Five Operations From Power Mower

657 The Whirlwind power mowers cut grass and weeds of any height with the rotary action cutting through tall growths like a scythe. It cuts matted and tangled masses by a suction action to achieve a uniform cut; mulches the cut clippings; trims under low-hanging shrubbery and up to the edge of walls, fences, trees, and walks; cut on forward or backward travel. Write for literature describing the Models 31, 24, and Junior to Whirlwind, Inc., 3707 North Richards St., Milwaukee 12, Wis.

Hydraulic Motor Grader Handles Diversified Jobs

658 The American No. 8 hydraulic motor grader maintains streets and highways, and handles materials, removal of snow, loading, and bulldozing. Write also for data about the Coleman Conversion Unit that converts truck to 4-wheel drive, making it possible to haul bigger payloads up steeper grades; the American-Coleman Co., Omaha, Nebra.

Fast Coin Counting Adds Profit

659 Klopp Engineering, 5736 Twelfth St., Detroit 3, Mich., will send you data on its two models of coin counters—the mechanisms that quickly and accurately handle municipal revenue. The Model D is manually operated and ideal for on-the-route use. Model DE is electrically operated.

Air Compressors

660 The Smith compressor, powered by the Chrysler Industrial engine, 3 cylinder for power and 3 for compression, has a capacity of 70 cubic feet at 80 pounds pressure. The throttle operates about 1/3 open when operating 150 pounds pressure. Data about the Smith Model 250 may be obtained by writing Gordon Smith & Co., 425 College St., Bowling Green, Ky.

Drinking Fountains, Yard Hydrants

661 Catalog M, from The Murdock Mfg. & Supply Co., 426 Plum St., Cincinnati 2, Ohio, describes the company's street washers, drinking fountains, hydrants, compressing tools, water lift or cellar drainer, spring-closing hose-box, and water-service parts.

Save with Hypochlorites On Small Chlorine Dosings

662 Where less than 500,000 gallons of water are treated daily or where the chlorine demand is not large, Pittchlor does the same effective job as liquid chlorine, but saves on the equipment investment required. Write for literature to the Pittsburgh Plate Glass Co., Columbia Chemical Div., Fifth and Bellefield, Pittsburgh 13, Pa.

Pipe Lining— And Traffic Goes On

663 With the Preload pipe lining process, pre-mixed dry material is shot against the pipe wall with a velocity of over 300 feet per minute. The cement mortar lining, thickness closely control'ed, is then smoothed by four graduated spring-loaded trowels attached to pantograph troweling arms. The surface equipment is designed to operate with a minimum of interference to traffic and surrounding business and residential districts. Write for the *Pipe Lining Bulletin*, The Preload Companies, 209-211 E. 37th St., New York 16, N. Y.

(Continued on Page 25)

ETNYRE ROAD AND STREET EQUIPMENT

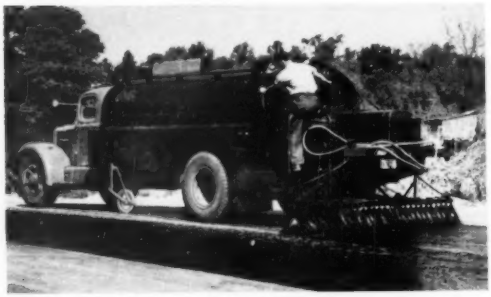
For keeping your streets in tip-top shape you can always depend on Etnyre for all three:

"Sanitary" Street Flushers for keeping your streets clean and healthful . . . free from dust and dirt.

"Black Topper" Bituminous Distributors for new surfacing or much needed street repairs.

Street Maintenance Units for repairing and maintaining streets where a distributor is not required.

Here is the flexible, money-saving Etnyre Sanitary Pressure Flusher . . . the complete answer to street cleaning and sanitation problems. It's the "machine of a dozen uses" as extra attachments make it adaptable to sewer cleaning, sprinkling streets, pumping out basements, fire fighting, tree spraying, watering shrubbery, sidewalk cleaning . . . wherever water under pressure is required!



The Etnyre "Black Topper" Distributor, the most widely used distributor in the world for accurate, uniform application of bituminous material for low cost new construction, resurfacing and maintenance.

For all maintenance and construction work where size of job does not warrant a Distributor. Like the famous "Black Topper" it is designed for dependable, economical and efficient operation.

SUCCESSFUL ROAD BUILDERS USE ETNYRES

E. D. ETNYRE & CO., Oregon, Ill.

Your Catalog Supply Service

Please Use Coupon on Page 21

Insulated Piping Distribution

664 A new booklet recently published by The Ric-wil Co., Cleveland, Ohio, deals with such subjects as the layout of the route of the insulated steam-pipe distribution system, methods of estimating steam loads, steam-flow charts and tables, properties of steel pipe, properties of saturated steam, and similar topics. Ask for *Engineering Data for Underground Steam Distribution, Section* 480-2.

Design Data For Steel Mesh Flooring

665 Joseph T. Ryerson & Son, Inc., Chicago 80, Ill., has published a bulletin giving the engineering data of load deflection air-flow comparison, and free openings of standard and flattened-mesh types of expanded steel. Included are illustrations of mesh and typical applications.

Bituminous Paver Adjusts in Width

666 The BP-5 bituminous paver, manufactured by The Jaeger Machine Co., Columbus 16, Ohio, is adjustable while in motion to any width from 9 to 12½ feet, and quickly adjusts for lesser widths down to 5 feet 8 inches. It lays any paving material to the exact thickness and density required, and matches and paves flush to adjacent curb or gutter. Ask for Catalog BP-9.

Trenchliner Speeds City Operations

667 The 250 Trenchliner, manufactured by the Parsons Co., Newton, Iowa, digs trenches close to trees, poles, curbs, in narrow alleys—the digging boom shifts to either side—and cuts within 12 inches of obstructions. The telescope boom is easily changed for depth and digs over and under crosspipes.

Traffic Signs, Lighting Poles

668 Tassco signs are fully described in the bulletin issued by the Traffic and Street Sign Co., Newark 5, N. J., also the other products manufactured by this company; tapered steel and aluminum street-lighting poles, antenna masts, and various types of markers.

Street-Flushing Equipment

669 Street-flushing and cleaning equipment is featured in a new 8-page bulletin issued by the Rosco Mfg. Co., 3118 Y Snelling Ave., Minneapolis 6, Minn. The Model MTA Streamlined street flusher is built in capacities of 1,200, 1,600, and 2,100 gallons. Also described is a 1,000-gallon unit with two wheels, and a power-driven street cleaner that features a water blanket spray in front of the brush and a 310-gallon tank mounted at the rear. Ask for Bulletin 49-1.

Box, Valve and Buried-Metals Locator

670 Blind searching for valves, covers, etc., often takes considerable time, which can be eliminated by use of a Goldak Model 620 box and valve locator. A large area can be surveyed in a few minutes. As the sought-after object is passed over, a sharp, clear signal registers in the headset. It is manufactured by The Goldak Co., 1544 West Glenoaks Blvd., Glendale 1, Calif.

Cuts Pipe-Installation Costs

671 The Hydrauger bores a clean, open hole horizontally through all formations without paralyzing traffic or wrecking pavements, lawns, or gardens. Powered by 3.2 and 5.2 hp, it makes any size open hole from 2 to 14½ inches, and bores of over 200 feet have been made in one operation. Write for Catalog No. 8, the Hydrauger Corp., Ltd., 681 Market St., San Francisco 5, Calif.

Asbestos-Cement Pipe With no Maintenance Troubles

672 K & M Century asbestos-cement pipe for underground water mains, in long distance conveyance, distribution through city streets, or for force mains on sanitary sewers, can be cut, drilled, and tapped on the job and its light weight requires fewer men to handle. The pipe is immune to corrosion, electrolysis, and tuberculation, and the flexible coupling minimizes the effects of traffic vibration and earth settlement. Write for data to Keasbey & Mattison Co., Ambler, Pa.

Floodlight with Rain-Shed Visor

673 The Westinghouse AFA-16 open-type sports floodlight for municipal stadiums is weather protected by a rain-shed visor welded to the reflector. The visor does not impair the efficiency of the lamp, recessed deep inside, and its circular form eliminates blinding glare while producing a medium or wide beam of high efficiency. Write for *Sports Floodlighting Planning Book*, B-3911, to the Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

Paint Reduces Temperature, Evaporation Losses

674 Alumikote painting will protect tanks against high evaporation losses, will keep outdoor structures rust-free, and—on interiors—save on electric light bills. The paint is applied by spray or brush, is durable, and gives high coverage. Write for literature to the Vita-Var Corp., Newark, N. J.

Spread Sand, Stone, Chips

675 The Brokol spreader, Model 20, is designed for spreading sand, cinders, salt, or anti-skid mixtures on city pavements, and sand or stone chips on bituminous treated roads. The spreading capacity is 4 to 20 feet and is regulated by the speed of the truck or the adjustable deflector plates fastened to the sides of the hopper. It can be used on any truck. Write for Catalog No. N-39-4 to the Brokol Mfg. Co., Inc., 89-91 Madison St., Newark, N. J.

Heating Kettles With Fire-Proof Tops

676 Cut-back and other highly inflammable material used in street-repair work can be heated without danger because of the fireproof top on the White heating kettles. Furnished as plain kettles or with hand or engine-driven spray pumps for patching, they may also be supplied with thermometer, barrel hoist, warming hood. All oil-burning. Capacities are 65, 110, 165, 220, 300 gallons. Write for a catalog to the White Mfg. Co., Elkhart, Ind.

Some Facts About Parking Meters

677 The Dual Parking Meter Co., Milford Bldg., Canton 2, Ohio, will send you a bulletin describing operational construction of the Dual automatic parking meter. The mechanism on this choice-of-coin meter is weather- and tamper-proof and contained in one packaged unit. Dual sends field servicemen on periodic inspections and factory-trains your personnel.

100 Reproductions per Minute Of Typed, Written, Drawn Copy

678 The A. B. Dick Co., 720 West Jackson Blvd., Chicago 6, Ill., makes a table-top mimeographer, Model 435, with a built-in motor that handles paper and card stock in sizes from 3 by 5 inches to 9 by 16 inches, reproducting written, typed, and drawn material.

Centrifugal Sewage Pumps

679 Worthington Freflo pumps, types FL, FLV, and FLC, are described in Bulletin W-317-B10A. The bulletin gives specifications of the three types of centrifugal pumps for use in sewage plants, and also shows actual performance curves in chart form. Write the Worthington Pump and Machinery Corp., Harrison, N. J.

4-Wheel-Drive Tractor-Shovel Does Many Jobs

680 A new catalog has been prepared by The Frank G. Hough Co., 710 Sunnyside Ave., Libertyville, Ill., decribing the 4-wheel-drive 1½-cubic-yard HM Payloader. The HM has hydraulic bucket control, several speeds in either direction, fast forward-reverse control, power boosted steering, controlled dumping.

Do You Need Heavy-Duty Pumps?

681 Peerless pumps have a capacity range up to 60,000 gpm against heads up to 300 feet. They use a horizontal centrifugal design, and pump water or alkaline fluids at temperatures up to 300° F. This line, Type A, is single stage, double suction, split case design in sizes from 1¼ through 48 inches. Write to Peerless Pump Div., Food Machinery and Chemical Corp., Los Angeles 31, Calif.

Expert Advice On Municipal Management

682 By arranging for service from the International City Managers' Assn., 1313 E. 60th St., Chicago 37, Ill., you can obtain information on what is considered the best practice in handling a specific municipal problem; what other cities are doing about it; what the trend is. In addition, you will receive a year book giving a resume of what more than 2,000 cities' activities have been, and special information reports.

Intense Mixing Eliminates Scum In Sewage Treatment

683 In a municipal sewage plant during a test of the Dorr digester equipped with a high-capacity circulating mixer, scum was allowed to build up for a period of one week to a height of one foot. After one hour of mixing, all scum disappeared; intermittent operation of the mixer maintained a homogeneous sludge mixture. Write for data to the Dorr Co., 570 Lexington Ave., New York 22, N. Y.

A Solution to the Dust Hazard in Power Sweeping

684 The vacuum attachment incorporated in the new Model 500 just introduced by the Wilshire Power Sweeper Co., 4615 Alger St., Los Angeles 26, Calif., provides a dust filter on a sweeper that has a special guide wheel which enables the sweeper to sweep close to obstructions without scraping or marring. The air-cooled gasoline motor, six heavy-duty brushes, and sulky make it valuable for indoor as well as outdoor sweeping.

Don't Number Houses Haphazardly

685 Municipalities, contemplating a change in house-numbering methods to prevent duplication and facilitate house location, may be interested in a bulletin explaining the block system. Write Premax Products, Div. of Chisholm-Ryder Co., Inc., 4916 Highland Ave., Niagara Falls, N. Y.

(Continued on Page 26)

TOPS for black top highway surfacing

The Hi-Way Model "R" Material Spreader—Traction Driven

Save time, labor and material with the Hi-Way Model "R". Fast, accurate operation. Spreads chips, rock, gravel smoothly —no thick and thin spots to waste time and material. Ideal for seal coats on oil. Operates forward or reverse simply by shifting lever. Adjustable feed gate controls thickness of spread, width is adjusted from one foot to full width of spreader. Entire unit balanced for quick, easy hook-up to truck. Available in 6 widths from 8 to 13 ft.

MODEL "DD" SPREADER—MOTOR DRIVEN

Clamps onto tailgate of any dump truck. Handles sand and cinders for ice control, calcium chloride for dust control, equally adapted for seal coat work. Does the work of 5 men casting by hand. 1½ H.P. Briggs and Stratton power.

WRITE FOR COMPLETE DETAILS

HIGHWAY EQUIPMENT COMPANY, INC.

625 D AVENUE N.W. CEDAR RAPIDS, IOWA

SOLD AND SERVICED BY

LEADING CONSTRUCTION MACHINERY DEALERS THROUGHOUT THE UNITED STATES, CANADA AND FOREIGN COUNTRIES.

MANUFACTURERS OF THE WORLD'S MOST COMPLETE LINE OF SPREADERS

For You — Free

Please Use Coupon on Page 21

Engineering Services On Retainer

686 Foster D. Snell, Inc., 29 W. 15th St., New York 11, N. Y., has published a leaflet that describes how this firm, staffed by about 100 consulting chemists and engineers, may be retained to conduct research and inspection for your municipality.

Rubber Insulation On Fire Alarm Cable

687 Rubber insulation around Hazard fire-alarm cable resists moisture, distortion and physical damage, and heat, giving protection against service discontinuance in emergencies. Write for data to the Hazard Insulated Wire Works, Division of The Okonite Co., Wilkes-Barre, Pa.

Low Loading On Refuse Collector

688 The Colecto-Pak loads at about waist height, reducing operator fatigue; the bucket unloads in less than a minute, the packer plate compresses 24 yards of wrapped garbage to 12 yards, and the body raises to a 45° dumping angle in 12 seconds to permit fast, clean discharge. Write for literature about the 9- and 12-cubic-yard Colecto-Paks to The Heil Co., Dept. 4349, 3043 W. Montana St., Milwaukee 1, Wis.

Filters for Swimming Pools

689 Diatomite filtration yields clear safe water in swimming pools—which can, without proper sanitation methods, be a source of infection and epidemic. Write for *The Modern Way* to Bowser, Inc., 1396 Creighton Ave., Fort Wayne 2, Ind.

Gasoline Engines

690 The purchase of a gasoline engine from the Briggs & Stratton Corp., Milwaukee 1, Wis., includes not only an efficient 4-cycle engine, single-cylinder, air-cooled engine, but also world-wide factory supervised service.

Protect Traffic Lines While They're Drying

691 General Guards consist of a steel base section, a simple flat spring for controlling the flag staff in position, a steel flag staff, a slip collar for holding the flag at any mast, a red cloth flag, and a removable staff cap for easy handling and convenience in renewing the flag. When in position, the guard spans the traffic line—and the paint has a chance to dry before motorists start criss-crossing over the lines. Write for literature to the General Road Equipment Co., Hanna Bldg., Cleveland 15, Ohio.

Fast Economical Trenching

692 The McDonald E-Z Mount trencher, recommended for foundation trenching, irrigation lines, tiling, water, gas, and electric conduit sewer lines, digs up to 375 feet per hour at a 5-foot depth. Attachable to any tractor, it has interchangeable blades for 7½- or 10-inch size trench. Write for literature to the Mississippi Engineering Co., Inc., Grand Mound, Iowa.

Build Better Pavements

693 Penetration macadam with Bitumuls emulsified asphalt is stable and durable in hot or cold weather; it provides a smooth riding, non-skid, sealed surface with excellent permanence that minimizes maintenance worries. Write for booklets entitled: *Bitumuls Penetration Macadam, Bitumuls Maintenance, Bitumuls Sand-Mix, Bitumuls Handbook, Hydropel—an Admix for Concrete, Fibrecoat—Roof and Metal Coating,* and *Tennis Courts—Laykold & Grasstex.* In the west, address the Stancal Asphalt & Bitmuls Co.; in the east, American Bitumuls Co., both at 200 Bush St., San Francisco 4, Calif.

(Continued on Page 28)

Handling waste without wasting land

KANSAS CITY has the right idea. So have many other municipalities when it comes to taking the unsightliness and health menaces out of city dumps. "Bury the trash," is the watchword. But here's the *extra* pay-off: Dig sanitary ditches so deep that the earth covering will be thick enough to make the land reusable and readily salable. It's easy to do—and truly economical—with "Caterpillar" equipment.

A "Caterpillar" Diesel Tractor, with matching Bulldozer and Scraper, is used on the K.C. project. *Below*—the tractor-scraper unit digs the trench—20 ft. deep and 30 ft. wide. *Inset*—the same tractor, with bulldozer, handles the truckloads (as many as 500 daily)—spreads the refuse, compacts it thoroughly, covers it thickly and solidly.

The cost? You'd be surprised!—at its relative lowness. Benefits? A 100-percent-sanitary fill and, eventually, 100 acres of valuable restored land.

Do you want to do something equally beneficial and forward-looking for *your* community? Your "Caterpillar" dealer will gladly help you survey your needs and equipment outlay.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR
REG. U. S. PAT. OFF.

DIESEL ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

Since I got this MICHIGAN, I've been able to handle a lot of the jobs around the country that I had to pass up before. That shovel gets to the job as fast as my trucks, and under its own power. It'll roll through city traffic without any trouble—and I don't have to worry about highway limits. Best of all, it'll pull in and out of any place the trucks can go. Yessir, my MICHIGAN is always ready to go—saves plenty of time too!

I looked 'em all over before I decided on MICHIGAN—and the way it has performed since convinces me that MICHIGAN is 'tops' as a money-maker.

DID YOU KNOW
you can buy
a brand new
MICHIGAN
TRUCK CRANE
complete with chassis
for as little as $10,250
F.O.B. factory?

Write for Bulletin 100, "*On the Job with* MICHIGAN"

MICHIGAN

MICHIGAN POWER SHOVEL COMPANY
373 SECOND STREET, BENTON HARBOR, MICHIGAN, U.S.A.

For You — Free

Please Use Coupon on Page 21

Cost-Saving Features Of Transite Pressure Pipe

694 The economies incident to water-supply systems begin with the pipe selected. Transite pressure pipe, made by Johns-Manville, Box 290, New York 16, N. Y., is relatively light in weight, reducing the costs of unloading, handling, and laying. Factory-made simplex couplings provide a tight but flexible joint while permitting deflections up to 5 degrees at each joint. A coupling puller is the only tool required for jointing.

Sanitary Collection Body Gives Improved Refuse Service

695 The Load-Packer is a fully enclosed refuse-collection body that still provides facile dumping and loading with a minimum of operator fatigue. Write for Bulletin M-51 for a detailed explanation of how refuse collection costs can be appreciably cut while decreasing public health hazards; Gar Wood Industries, Inc., Wayne Div., Wayne, Mich.

Photoelectric Controls For Street Lighting

696 The Fisher-Pierce Co., Inc., 70 Ceylon St., Boston 21, Mass., produces photo-electric controls for street lighting that manipulate either individual street lights or lights for an entire street, eliminating separate street-lighting circuits. Write for Bulletin 63300.

Spraying Tall Trees

697 Hardie pumps provide capacities up to 80 gpm and pressures up to 1,000 psi—and reach the top of tall trees. The company has supplied many custom-built fleets of motor-truck-mounted models with and without truck power take-off. Write for data to the Hardie Mfg. Co., Hudson, Mich.

Reflective Glass Beads Make Night Signs Visible

698 Flex-O-Lite beads are tiny crystal glass spheres, some of them microscopic in size, which, applied to plain or colored surfaces, reflect light to its source. Manufactured by the Flex-O-Lite Mfg. Co., St. Louis 3, Mo., the beads may be used on airfields to outline runway, boundary, center lines, and symbols. They may also be used as a rear striping on trucks, on traffic signs and posts, and on railway crossing signs and semaphore signals.

Paved Alleys Mean Clean Alleys

699 If the alleys of your municipality are cesspools of vermin and filth, muddy in wet weather, dusty in dry weather, it's time to pave them with concrete. For literature on this aspect of your paving program, write the Portland Cement Assn., Dept. A4-4, 33 W. Grand Ave., Chicago 10, Ill.

$FeCl_3$ for Sewage Coagulation

700 Innis, Speiden & Co., 117-119 Liberty St., New York, N. Y., has released a 16-page booklet that gives detailed information about the characteristics and reactions of ferric chloride as a coagulant in sewage plants. The literature includes such information as the contents of solutions, how to determine the amounts and strengths of solutions to be used, and descriptions of equipment and feeding devices.

Complete Line of Plug Valves

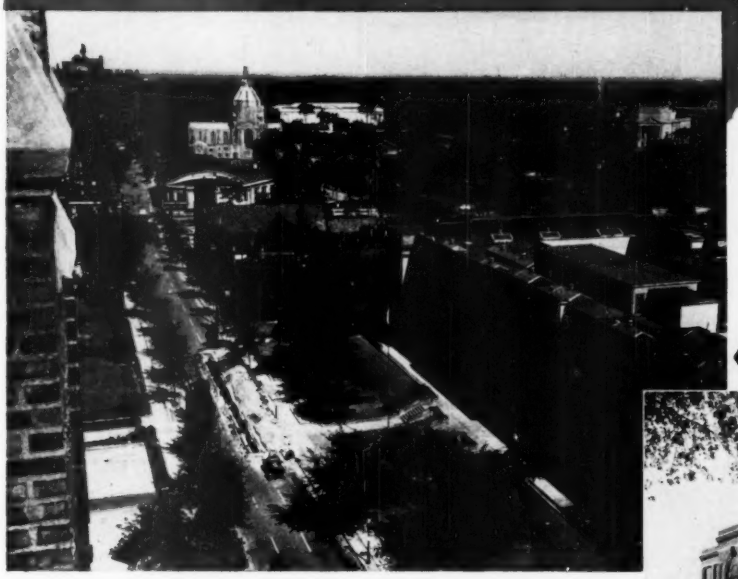
701 The American Car and Foundry Co., 30 Church St., New York 8, N. Y., will send you its catalog No. 4, which details in 32 pages the company's complete line of plug valves—cylindrical, lubricated, full-pipe area. These A. C. F. valves may be used for water, air, gas, vacuum, chemicals, and other fluids.

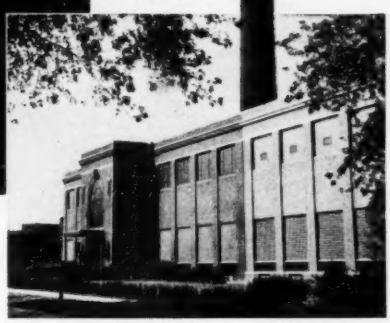
(Continued on Page 30)

Municipal Pumping Station puts

EXCESS STEAM TO EXCELLENT USE

In Central Heating System





A partial view of the area served

Fairmount Water Pumping Station, Cleveland, Ohio

THE EUCLID-CARNEGIE-EAST 105th STREET district is Cleveland's second largest commercial community. This area is given over to office buildings, hotels, stores, restaurants, theatres, churches and apartment buildings.

The virtual absence of smoke throughout this forty block area is attributable to the fact that the district enjoys Central Heating. This great asset to the community was made possible by the foresight and efficiency of the city's water department.

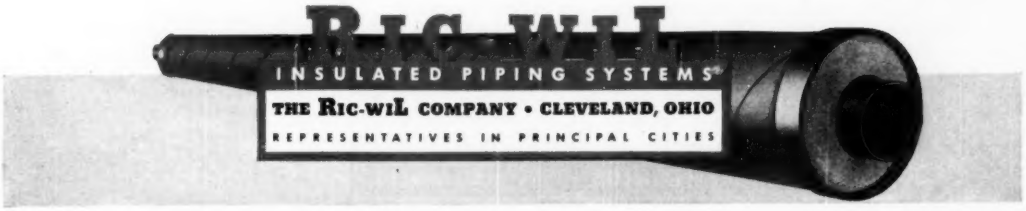
This Central Heating system originates at the Fairmount Municipal Pumping Station about a mile away from the heart of the business district served. Instead of wasting exhaust steam after process and plant heating requirements have been met, Fairmount puts its steam to work again. By controlling it and supplementing it with some live steam, the city provides an adequate steam supply for this important community.

Over 237,000,000 pounds of this "ready-made heat in its most convenient form" is delivered annually via Ric-wiL Hel-cor Insulated Pipe Units and Ric-wiL Cast Iron and Tile Conduit Systems to 131 large customers in the area.

For full information on Ric-wiL Insulated Piping for Central Heating and for Industrial Pipe Distribution Systems write The Ric-wiL Co., Dept. 11-H.

No Detour Necessary

Carnegie Avenue carries over 28,000 cars and buses daily. This heavy traffic flow was not disturbed when a Fairmount Steam main in Ric-wiL Hel-cor Insulated Piping was installed under the busy thoroughfare, 21' long Ric-wiL Units through a tunnel formed of 36" diameter Armco Corrugated Steel Pipe, which had been jacked through the ground under the street.



Here's all you need to repair a KENNEDY SAFETOP after collision damage...

Only one man with a socket wrench

a large screwdriver

a light sledge hammer

one collision breakage repair kit (breaking ring, coupling, 2 pins, gasket)

and 30 minutes

More and more communities standardize on KENNEDY SAFETOP Fire Hydrants because SAFETOPS are proved dependable under the most rigorous conditions . . . and because SAFETOP maintenance and repair features are simplified for greater economy and efficiency.

Write for Bulletin 62 describing *all* the details of the KENNEDY SAFETOP'S design and construction. No obligation!

THE KENNEDY VALVE MFG. CO.
1030 EAST WATER ST.
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VALVES • PIPE FITTINGS • FIRE HYDRANTS

OFFICE-WAREHOUSES IN NEW YORK, CHICAGO, SAN FRANCISCO • SALES REPRESENTATIVES IN PRINCIPAL CITIES

For You — Free

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More Power From Engines With the Right Oil

702 Heavy-duty gasoline and diesel engines will operate more efficiently and at lower maintenance and operating costs when they are operated on the most suitable oil. Write for information about Texaco Ursa Oil X**, fully detergent, dispersive, and resistant to oxidation; the Texas Co., 135 E. 42nd St., New York 17, N. Y.

Pipe Fittings— Standard and To Order

703 Warren fittings are available in bell and spigot, flange, short body, plain ends, mechanical joint, in sizes from 2 to 84 inches. Special castings can be obtained to meet individual requirements. Write the Warren Foundry & Pipe Corp., 11 Broadway, New York, N. Y.

Cast Iron Pipe

704 U. S. cast iron pipe may be used for water, gas, and sewerage service. Write for data about types and sizes to the United States Pipe and Foundry Co., Burlington, N. J.

Test Mains Without Valve

705 The Hold Firm test plug for cast iron steel, transite, and soil-and-concrete pipe lines requires no valves; the pipe is tested as it is laid. Open trenches are eliminated, and unskilled labor does the work. The plug withstands 300-pound hydrostatic pressure, yet is light in weight. Write for a circular to the Test Plug Mfg. Co., Skokie, Ill.

Hydrant Repair Without Digging, Without Special Tools or Hoist

706 The Rensselaer Corey hydrant is constructed with all working parts arranged so that they may be reached by opening the valve and removing the head—no digging, no special tools, no hoist, no more than a single operator. The main valve of this hydrant mechanically locks, preventing flooding in case of barrel breakage. Write for information to the Rensselaer Valve Co., Troy, N. Y.

Protect Firemen From Asphyxiation

707 The Scott Air-Pak provides cool, fresh air to firemen and enables them to get fires under control more quickly while protecting them from smoke asphyxiation. Write for Bulletin No. 510 to the Safety Equipment Div., Scott Aviation Corp., 191 Erie St., Lancaster, N. Y.

Non-Rusting Piping System With Copper Pipe and Fittings

708 In addition to its quality of being non-rusting, Type K copper pipe is soft and ductile so that it is not affected by vibration, resettlement of fill, or other similar earth movements. Write for data to the Streamline Pipe and Fittings Div., Mueller Brass Co., Port Huron, Mich.

Curb Stops, Couplings, Fittings

709 Folder 104 from the Hays Mfg. Co., Erie, Pa., describes corporation and curb stops, couplings, fittings, branch connections, and lead gooseneck. The booklet gives specific descriptions of the company's extensive lines.

Water-Equivalent Tables Speed Approximations

710 Water-works officials have found it appreciably time-saving to have quick reference charts for converting water measurements from one set of terms to another to obtain a figure close enough for all approximating purposes. Such charts may be obtained from R. W. Sparling, Box 3277 Terminal Annex, Los Angeles 54, Calif.

Small Cities make Big Savings in refuse collection

with GarWood LOAD-PACKERS

Representative Users

Corvallis, Oregon
Rice Lake, Wisconsin
Eveleth, Minnesota
Hartsville, South Carolina
Cedar Falls, Iowa
Corbin, Kentucky
Rock Hill, South Carolina
East Syracuse, New York
San Clemente, California
Albany, Oregon
Pullman, Washington
Kellogg, Idaho

A Gar Wood Load-Packer will quickly pay for itself even in very small cities and towns . . . this has been the experience of hundreds of small communities that are completely satisfied with the Load-Packer's performance. Gar Wood specialists will be glad to help you solve your individual refuse collection problems . . . to show you how costs can be reduced and public health improved. Bulletin M-51 gives you important information about the Load-Packer; write for it today.

GAR WOOD GW INDUSTRIES

GAR WOOD INDUSTRIES, INC.
WAYNE DIVISION, WAYNE, MICH.

PRODUCTS—HOISTS • DUMP BODIES • WINCHES • CRANES
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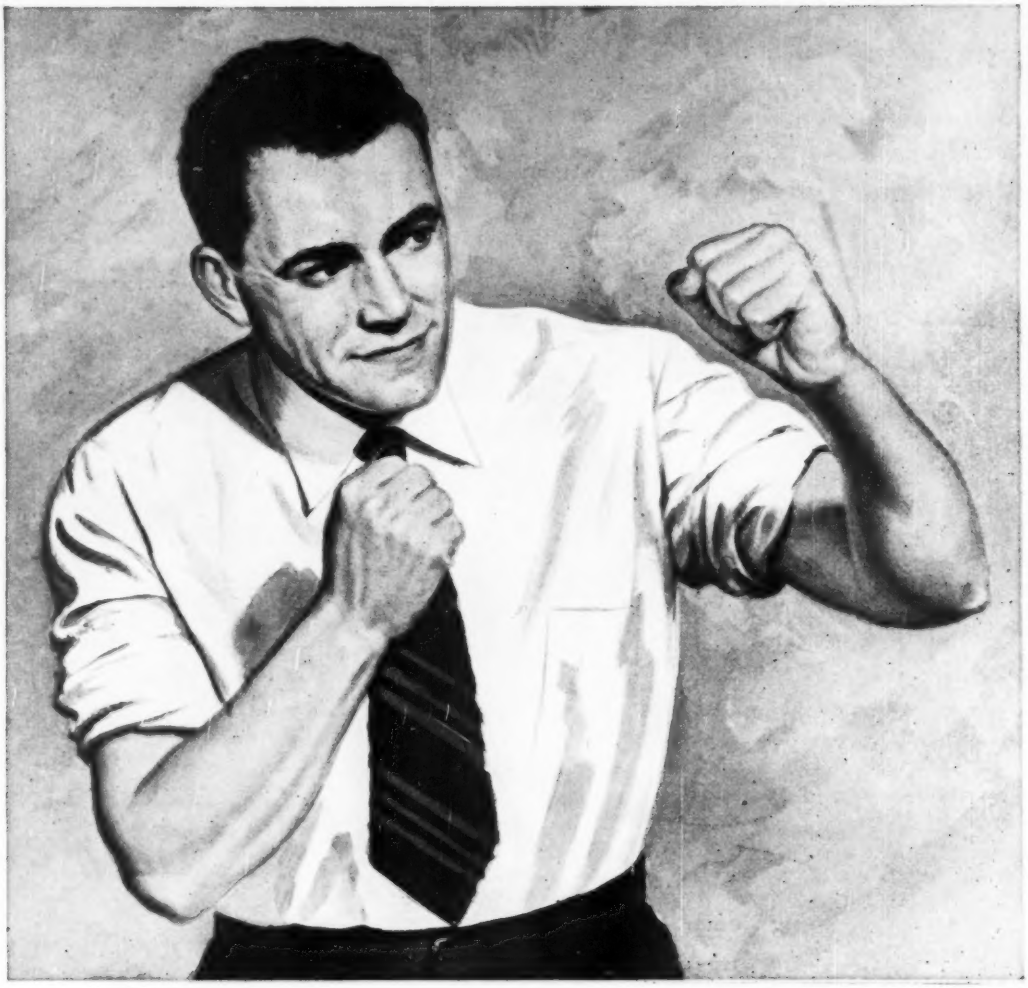
GAR WOOD INDUSTRIES, INC. A
Wayne Division, Wayne, Mich.

Please send me Bulletin M-51 telling how Gar Wood Load-Packers will help me reduce refuse collection costs and improve public health.

Name_____

Title_____

Address_____



We hope you'll still keep your guard up!

THIS IS HOW you greeted us when we first introduced you to the General Electric Disposall.*

And it was the correct stance—the right stand—to take in the face of a completely new and revolutionary sanitation idea.

Rightly, you put the burden squarely on us to prove that the Disposall method of garbage elimination would benefit your community in every way. It was not enough that the Disposall would take all food waste, shred it into tiny particles and flush it away into sewer or septic tank.

You wanted "show me" evidence that there would be no danger of sewage stoppages, or of any of the problems which might affect normal sewage-works operation.

We believe that we have convinced sanitation officials in cities, large and small, as to the merits of the Disposall. It has been accepted almost everywhere as a clean, sanitary, economical method of garbage elimination. When necessary, sanitation codes have been revised to permit its use in the community.

Doubtless, there are other food-waste shredders that will be able to convince you of their efficiency and economy. Appliances that will meet the strictest examination.

But, because the Disposall is the pioneer in the field of scientific garbage elimination—and has proved itself in the laboratory and in countless homes—we believe you will be interested in reading the specifications below. They are the very specifications used in the development and perfection of the General Electric Disposall.

They may be of use to you in drawing up your own list of requirements.

GENERAL ELECTRIC'S SPECIFICATIONS FOR ITS FOOD-WASTE SHREDDER—THE DISPOSALL

1. *The Disposall has a flow interlock that permits operation with cold water only.*

This requirement is necessary because experience has shown that only with cold water will greases become congealed within the cylinder. With congealed grease broken up into small particles, mixed with food waste and carried off through the drain, there can be little tendency for greases to adhere to the walls of the pipe.

2. *The discharge from the Disposall remains in a fluid state. The correct relationship between the amount of food waste and tap water is maintained by controlled shredding.*

This equalization of water and food waste permits the ready flow of effluent through traps, drain, or soil lines in a manner to prevent clogging.

3. *The Disposall shreds food waste to a uniform size, to meet the following requirements: 100% shall pass a ½-inch screen. At least 90% shall pass a ¼-inch screen. Not more than 5% shall pass a #40 sieve.*

(Screens should be the United States standard, and weight should be taken on a dry basis.)

In other words, the particles of shredded food waste are of the correct size, to permit effective sewage clarification and sludge digestion at the treatment plant.

4. *The food-waste shredder is self-scouring, with no fouling surfaces.*

This method prevents objectionable odors; keeps the unit clean as a whistle.

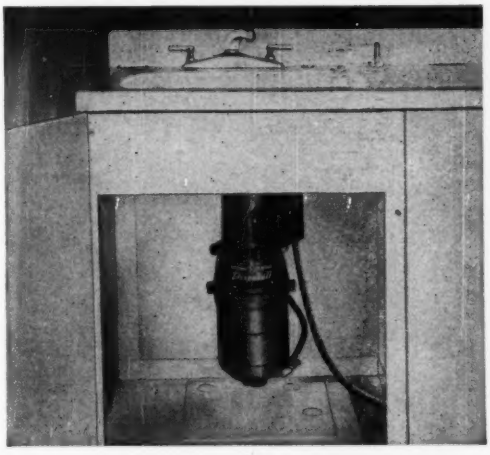
5. *The food-waste shredder provides maximum protection against electrical or mechanical hazards.*

As a safety measure, the shredding compartment is inaccessible during operation.

6. *The food-waste shredder is designed for connection to the plumbing, in accordance with the local plumbing code, and should be free from any cross-connection.*

This regulation eliminates any makeshift, homemade hook-ups, and permits the proper operation from sink to sewage treatment plant.

For further information about the Disposall method, simply write to Department AMC 494, General Electric Company, Bridgeport 2, Connecticut.



The General Electric Disposall is easily installed in almost any sink. Here it is shown installed in our electric sink. Food waste is scraped into drain opening, and safety cover is placed in position. The cold-water tap is then turned on, starting the Disposall operation. Food waste is shredded and flushed away automatically.

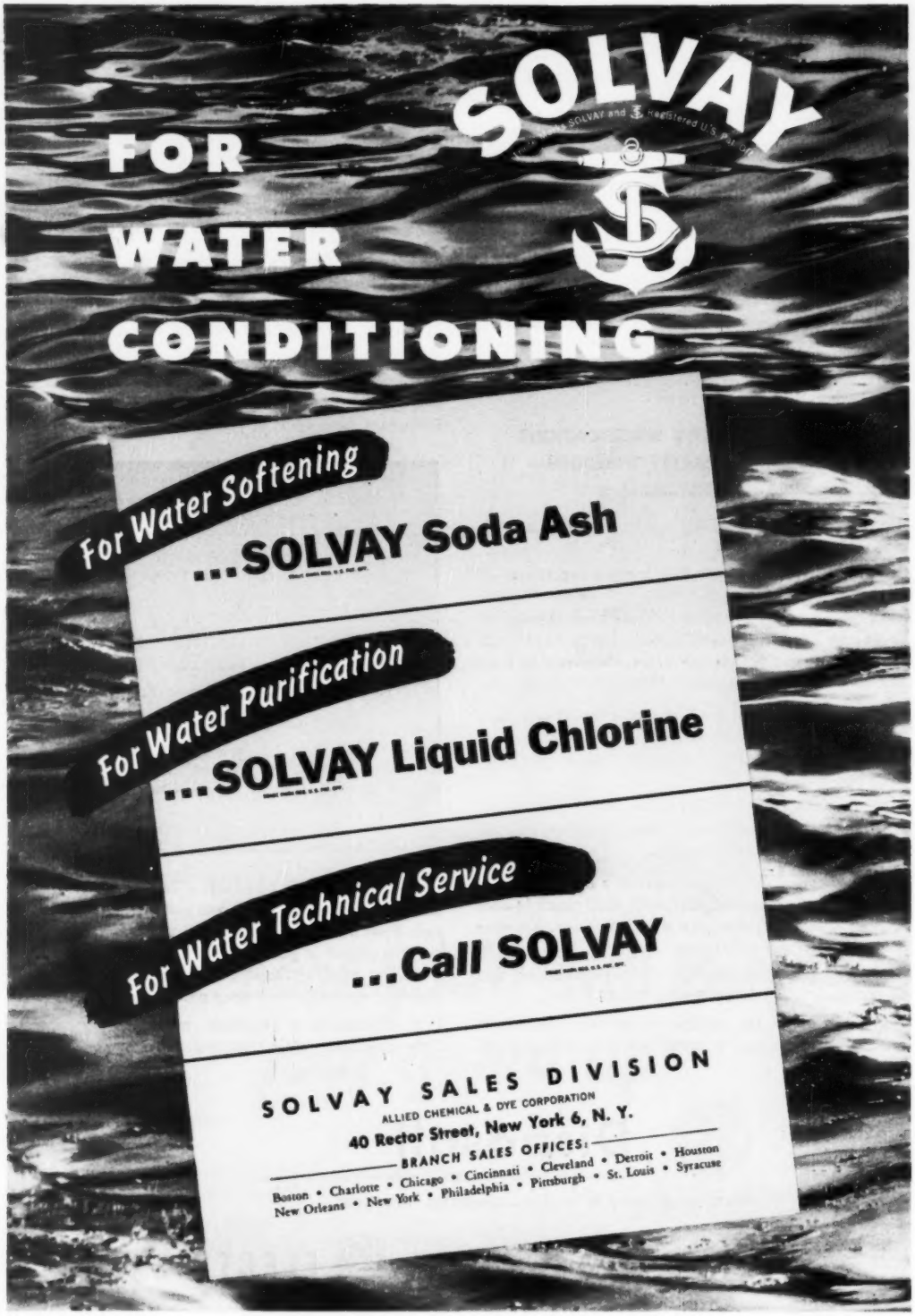
P. S. Thousands of Disposalls are operating successfully on private septic tank systems.

Disposall

*General Electric's registered trade-mark for its food-waste disposal appliance.

CONVERTS FOOD WASTE TO SEWAGE—ELIMINATES "GARBAGE"

GENERAL ELECTRIC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VM 30-1—30 Watt Mobile Station, 25-50 Megacycle

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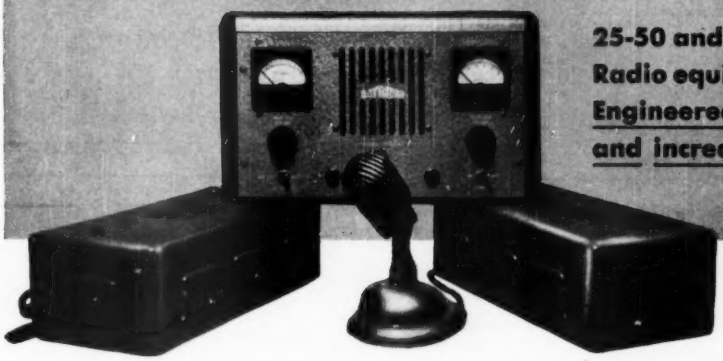

VS 50-1
50 Watt Fixed Station
25-50 Megacycle

UM 15-1—152-162 Megacycle (not illustrated)

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Keep the Safety Factor in Your Tank the Dixie Way . . .

by welding seams, pits and rivets which gives a riveted tank 15% more Safety Factor than it had when built. No rivets removed, water supply maintained while work is in progress. On completely re-conditioned jobs, the painting is guaranteed for five years, repairs guaranteed for ten years, provided the tank is painted every five years. Yearly inspection, making all adjustments, if any, without additional cost.

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SOUND PRINCIPLES OF WATER TANK MAINTENANCE and TANK TALK, *by* W. A. RILEY
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STREET SIGNS

Mak-A-Sign letter-changing stencils are easy to use, fast, efficient, inexpensive to operate. Makes legible street name on curb, sidewalk, wood or concrete posts, or signboards. *Write for Descriptive Folder and Prices.*

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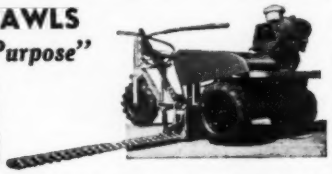
P. O. Box 2290, Birmingham, Alabama

FLINK-RAWLS
"Multiple-Purpose"
POWER MOWER



• CUTTER • MOWER • ROLLER • DUMP CART

This "Multiple-Purpose" mower can also be equipped for use as grader, snowplow, spreader, etc. 5-hp. aircooled Wisconsin Engine. 3 mph in operation—13 mph on highway. Runs 8 hours on 1¾ gal. gas. Used widely by highway depts., air fields, parks, athletic fields, estates, farms, schools, transportation companies, large factories. Write for prices and complete information.

FLINK CO. Dept. S-1 Streator, Ill.

MARTIN model 22 TRAILER

ANNOUNCING A VERSATILE NEW TRAILER WITH A CAPACITY OF 5 TO 7 TONS.

EXTREMELY LOW PLATFORM HEIGHT. Rollers, Track tractors, and bulk material easily loaded and transported.

JOB TESTED ENGINEERING. Rugged construction, ample flotation and adequate safety features typify all models of MARTIN TRAILERS.

There is a MARTIN TRAILER for every hauling job.

At your request let us send you detailed specifications and prices.

MARTIN MACHINE CO. KEWANEE, ILL.

There's No Place for Either In Today's Municipal Thinking!

That's Why Progressive City Officials Are Urging Architects, Builders and Plumbers to Recommend Modern Kitchen Disposers!

There was a time when the home garbage disposer was generally considered a "novelty" . . . a "gimmick," if you will. And, just as many people predicted the auto would never replace the horse, when the first disposers came out, precious few municipal officials foresaw that it would ever replace the garbage can.

But that is exactly what is happening—to the benefit of all concerned. Slowly but surely more and more homes are disposing of their own garbage this better, more sanitary way. That *all* homes will eventually be equipped with disposers is inevitable. Because home disposers offer the *only* solution to the municipal garbage problem, with all of its attending high costs and danger to public health.

Today almost every American city has given its stamp of approval to the modern disposer. For, besides the obvious contribution to the safeguarding of the public health, city officials know that when *all* homes are equipped with disposers tremendous savings can be effected in the collection of refuse.

The new American Kitchens Disposer. As was cited in *The American City's* study, "Ground Garbage," (Feb. 1948 issue) universal use of such disposers (1) should not overload a sewer system, (2) nor cause trouble of any kind in any well-designed sewer, (3) will effect material savings in the cost of handling garbage.

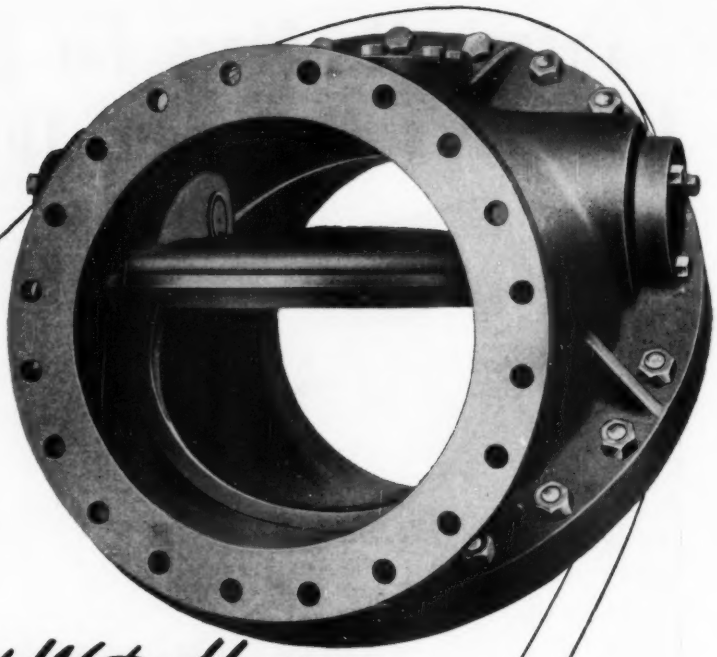
WHY ENGINEERS SAY THE NEW AMERICAN KITCHENS DISPOSER IS SUPERIOR TO PREVIOUS TYPES

While *all* nationally-advertised disposers have been proved satisfactory, engineers consider the new American Kitchens Disposer the most advanced. For several reasons: the American Kitchens Disposer provides a patented "knee-action" hinge in the center of each pulverizer arm (see diagram) so that disposer absolutely can not jam—even on contact with metal! Also, engineers approve its additional *vertical* shredders, saw-tooth hammers, easier servicing.

American
KITCHENS DISPOSER

PRESENTED BY THE MAKERS OF FAMOUS AMERICAN KITCHENS

AMERICAN CENTRAL DIVISION AVCO CONNERSVILLE, INDIANA



Prevent Water Hammer

with the "CUSHIONED CLOSING" of

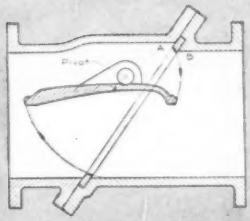
CHAPMAN

TILTING DISC CHECK VALVES

Chapman Tilting Disc Check Valves *work with . . . not against . . . the stream.* As a result, destructive pipe line stresses are practically eliminated. Head losses, as compared with conventional type check valves, are reduced 65% to 80%.

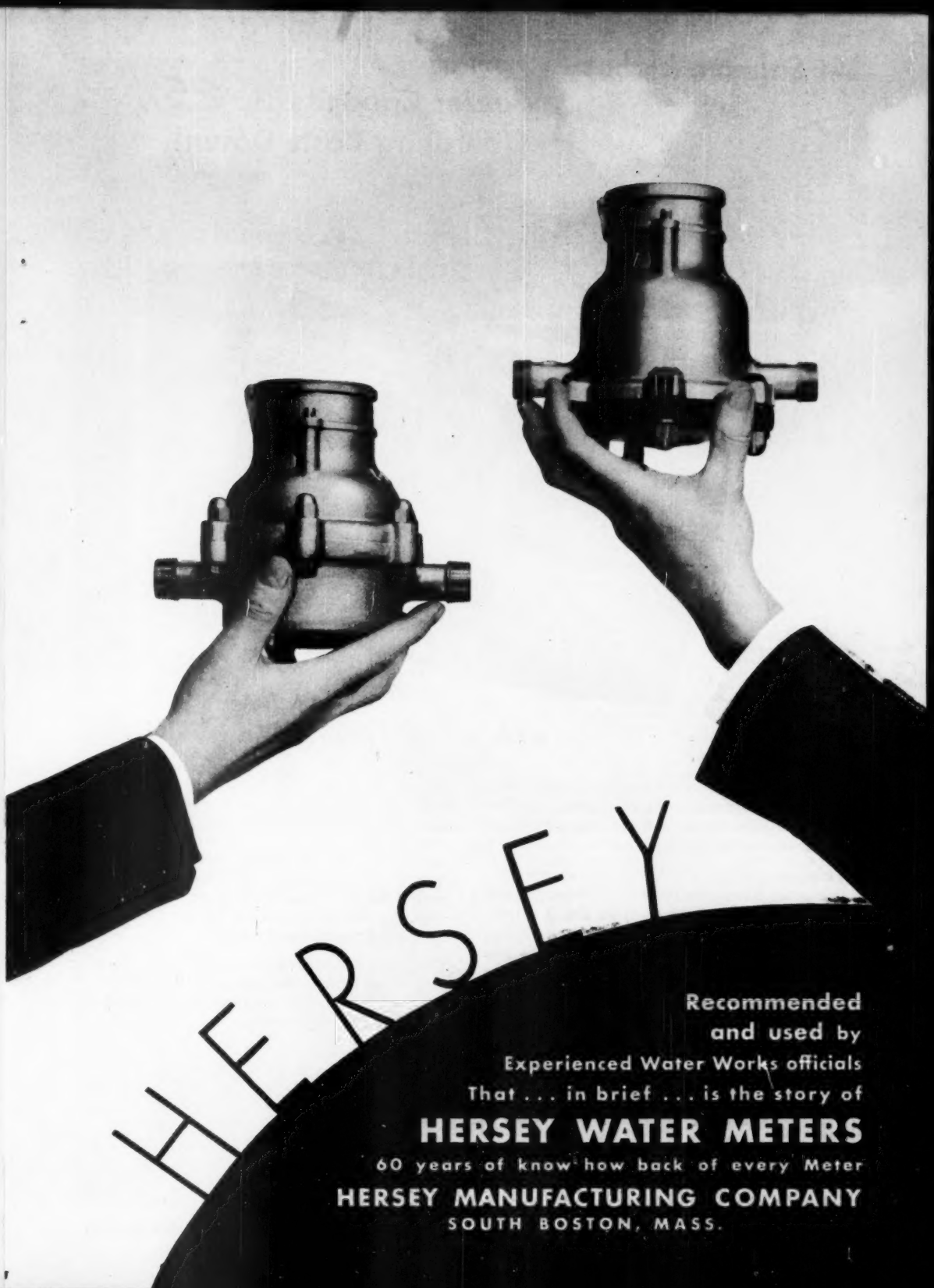
This balanced disc rides smoothly on the flow. It lifts away easily when opening . . . closes quickly and quietly. There is no rubbing on the seat . . . no slamming. Hinge pins, seats and bearings wear far longer.

These are facts. Write today for engineering data and reports of tests. Valves available in either iron or steel.



Cross-section of the Chapman Tilting Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc seat lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

The Chapman Valve Manufacturing Company
INDIAN ORCHARD, MASSACHUSETTS



Recommended
and used by
Experienced Water Works officials
That . . . in brief . . . is the story of

HERSEY WATER METERS

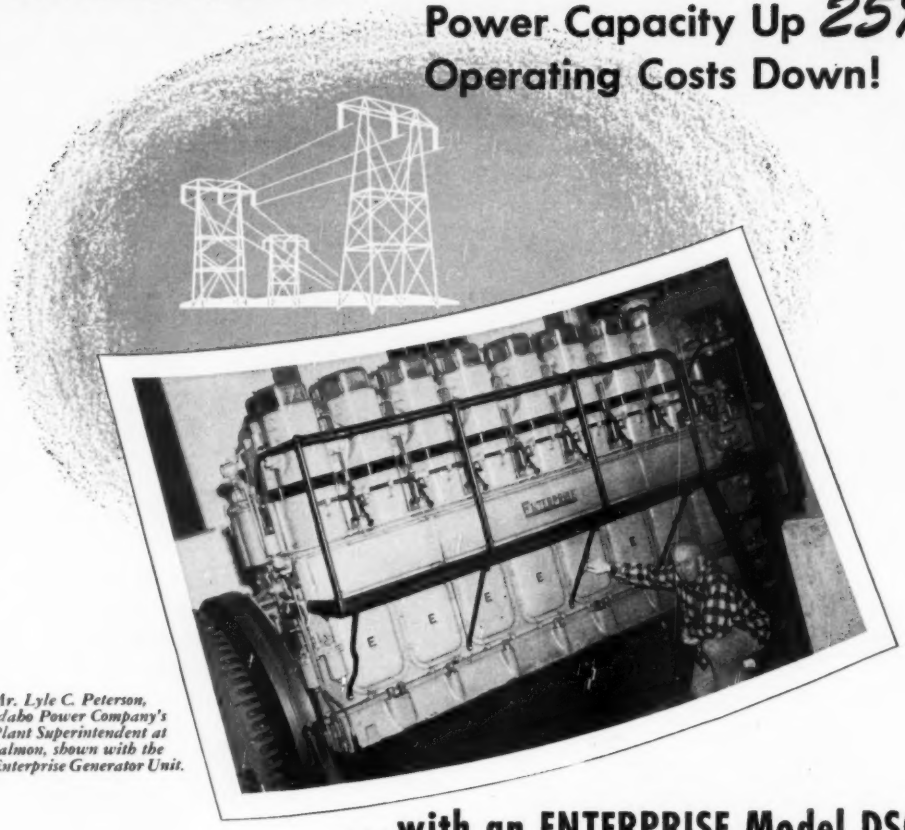
60 years of know how back of every Meter

HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

At Salmon, Idaho...

Power Capacity Up 25%
Operating Costs Down!



Mr. Lyle C. Peterson, Idaho Power Company's Plant Superintendent at Salmon, shown with the Enterprise Generator Unit.

...with an ENTERPRISE Model DSG-38

Power plants commonly find that when Enterprise Diesels go in, costs go down. That has been the experience at the Salmon plant of Idaho Power Company.

This plant, with 1255 HP in two hydro-electric units, has added 1070 HP in four diesel units at various times to meet rising power demands and offset erratic hydro power output caused seasonally by summer irrigation demands and winter ice jams.

Need for still more power led to the addition of the Enterprise DSG-38 in 1947. According to Mr. Peterson, the Salmon plant superintendent, this Enterprise unit *increased power capacity 25%*, and *reduced* the cost of operation by permitting use of 32 API gravity fuel instead of the 28 gravity fuel formerly required. The Enterprise has carried a large part of the plant load for long periods without difficulty. At other times it has operated efficiently with very small loads.

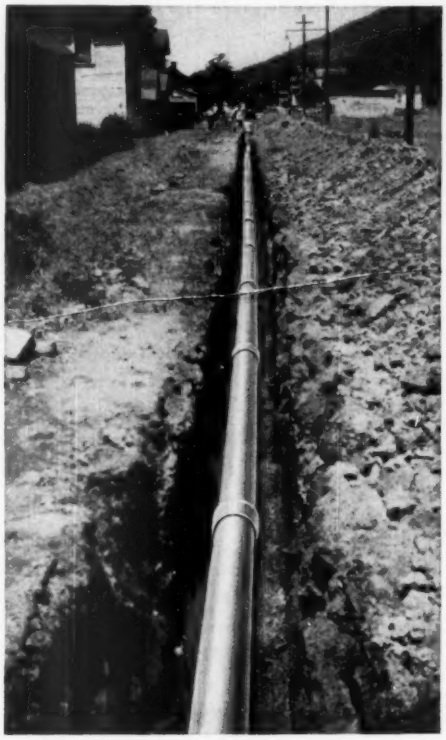
This same dependability, flexibility and economy is available in the complete line of Enterprise 4 cycle Diesel engines and generator sets. Write for full details.

ENTERPRISE *Diesels*

Choice of The Power Experts

ENTERPRISE ENGINE & FOUNDRY CO.
18TH & FLORIDA STS., SAN FRANCISCO 10, CALIF. OFFICES IN PRINCIPAL CITIES

Fast, easy, low cost installation...plus a long, trouble-free life...



Typical installation of K&M "Century" Asbestos-Cement Pipe, laid in western Pennsylvania.

K & M *"Century"* ASBESTOS-CEMENT PIPE

You gain all along the line when you choose "Century" Asbestos-Cement Pipe for your underground water mains . . . in long distance conveyance, distribution through city streets or for force mains on sanitary sewers.

Work goes fast, for "Century" Pipe is easy to install . . . can be cut, drilled and tapped on the job. And its light weight requires fewer men to handle . . . a factor which also means lower freight, trucking and handling costs.

Once laid, you can count on extra years of maintenance-free service, for "Century" Pipe is immune to corrosion, electrolysis, tuberculation. The flexible couplings minimize the effects of traffic vibration and earth settlement. Being made of asbestos and cement, it actually grows tougher with age. In fact, so free is "Century" Pipe from the common enemies of pipe lines, it can be removed after years of service and reinstalled for further use at original pressure.

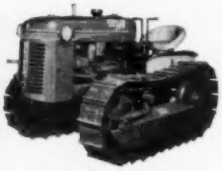
Learn the many interesting facts about this truly superior pipe. Your inquiry will receive prompt attention.

K&M best in asbestos

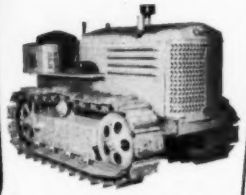
Nature made Asbestos...
Keasbey & Mattison has made it serve mankind since 1873

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

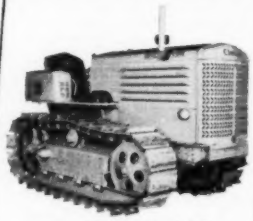
take your pick of PERFORMANCE



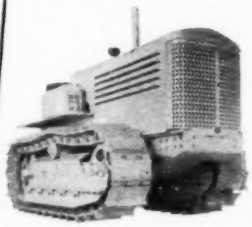
OLIVER-Cletrac Model HG



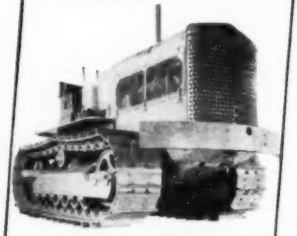
OLIVER-Cletrac Model A



OLIVER-Cletrac Model B



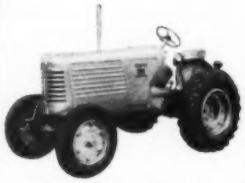
OLIVER-Cletrac Model D



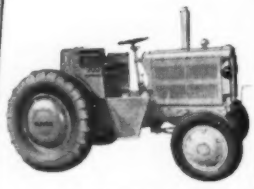
OLIVER-Cletrac Model F

OLIVER "60" Industrial

OLIVER "77" Industrial



OLIVER "88" Industrial



OLIVER "900" Industrial

• From the complete line of Oliver "Cletrac" Crawler Tractors and Oliver Industrial Wheel Tractors you can pick exactly the tractor you need and be assured of performance *in advance.*

The finest in industrial machinery is more than a slogan to Oliver . . . it is an accomplished fact that has been proved in year after year of outstanding performance. Design, materials, workmanship, and plant equipment are all based on one standard . . . the built-in dependability that adds up to more years of service in the field . . . lower operating and maintenance costs to you.

Combine this unsurpassed dependability with the *extra* service offered by your Oliver "Cletrac" Distributor . . . a complete line of industrial crawler and wheel tractors . . . a full line of allied equipment . . . complete service facilities and adequate stocks of genuine Oliver "Cletrac" repair parts . . . plus a broad background of field experience . . . and you'll see why you can take your pick of performance.

"THE SIGN OF EXTRA SERVICE"

OLIVER Cletrac SALES SERVICE

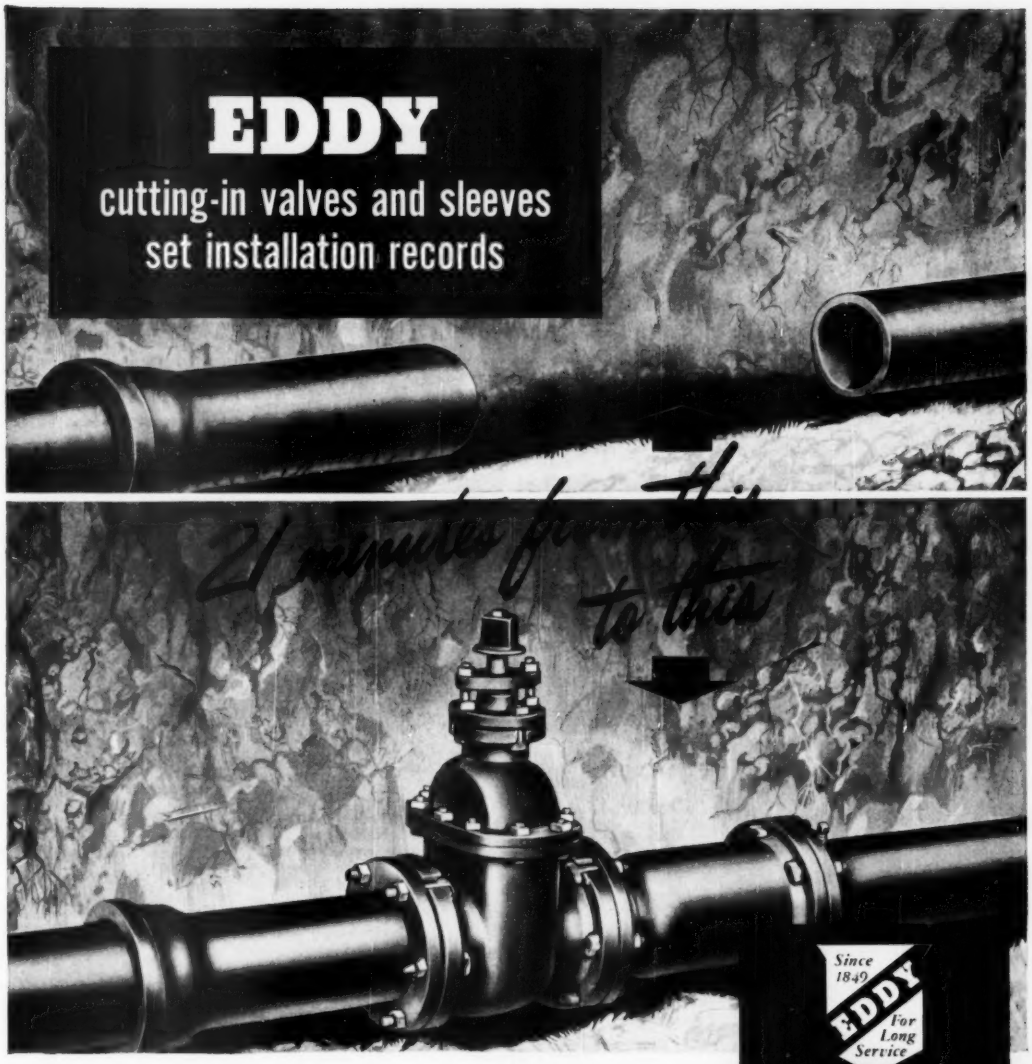
Cletrac

a product of

The OLIVER Corporation

Industrial Division, 19300 Euclid Avenue, Cleveland 17, Ohio

A Complete Line of Crawler and Industrial Wheel Tractors

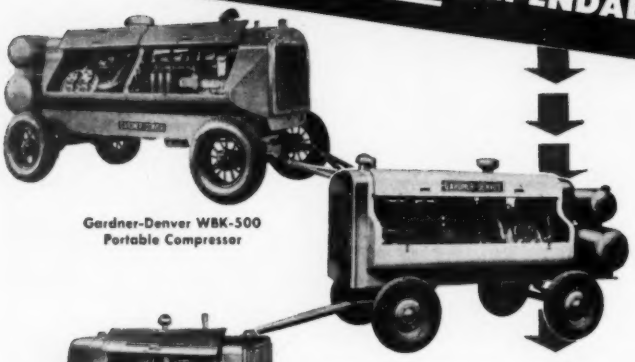


Since 1849 EDDY For Long Service

EDDY
VALVE COMPANY
A Subsidiary of James B. Clow & Sons
WATERFORD, NEW YORK

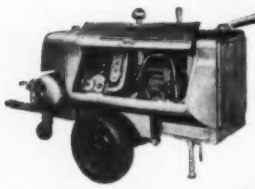
★ The National Board of Fire Underwriters recommend spacing valves every 500 to 800 feet on underground water distribution lines. Eddy cutting-in valves and sleeves with their mechanical joints save time . . . make the job easy and simple to perform on existing pipe lines. No caulking experts and no lead-melting equipment are needed. ★ After excavation and following removal of a section from the water main or hydrant stub, two men and a ratchet wrench can complete the job in twenty-one minutes—with all joints "bottle tight" under pressure. Work can be done in any kind of weather . . . in a flooded trench . . . fast and sure should emergency require. ★ Stock up now with Eddy cutting-in valves and sleeves and be ready for speedy, on the spot installations as circumstances may permit. Valves meet AWWA specifications . . . are available in sizes 3 to 12 inches . . . for use on both sand cast and centrifugally cast iron water pipe.

AN ALWAYS DEPENDABLE AIR SUPPLY . . .



Gardner-Denver WBK-500 Portable Compressor

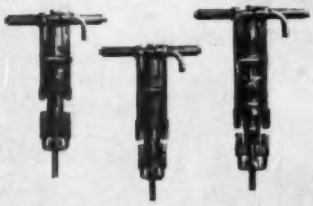
Gardner-Denver WHF-210 Portable Compressor



Gardner-Denver WHD-105 Portable Compressor

No matter where you send a Gardner-Denver Portable Compressor, you can be sure of a steady, uninterrupted air supply. For regardless of climate or altitude, the complete water jacketing of all cylinders "weather-conditions" them against over-heating — and from cold, unlubricated starts in sub-zero weather. For complete information, write Gardner-Denver Company, Quincy, Ill.

. . . FOR THE RIGHT AIR TOOLS



There's a Gardner-Denver Sinker that's "correct" in size and power for every type of ground. Shown here are the three most popular models: the high-speed S45 for secondary drilling or medium rock—the S55, most popular 55-pound sinker on the market—the S73, 67 pounds of speed and power for deep holes or the hardest formations.

Powerful Gardner-Denver B87 Paving Breaker has exclusive throttle safety latch — can be easily moved around the job without shutting off the air. Easily converted to a sheeting driver.

The feed of the new Gardner-Denver URM99 Wagon Drill is powered by a five-cylinder radial air motor. Designed for speedy, six-foot steel changes; carries a 3½ in. or 4 in. bore derrick drill. Your operator will like the ease of control.

The Gardner-Denver T23 Backfill Tamper is balanced for easy "walking" over the fill — has valve and exhaust that won't "freeze" in cold, damp weather — contains integral oil reservoir that assures complete lubrication.

Gardner-Denver Model 2B Clay Digger makes digging easy in clay or hardpan — can also be equipped with axe blade for trimming or cutting timber, or with mail point or chisel for light demolition work.

GARDNER-DENVER SINCE 1859

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CAN'T
MOVE
FASTER
THAN
THEY'RE
LOADED!
Attention:
PUBLIC WORKS OFFICIALS
This is one of a series of ads appearing throughout the year in national magazines . . . in our effort to help solve today's vital problem of traffic congestion.

TRUCKS THAT HAVE ADEQUATE PLATFORMS . . . ROOM TO MOVE AROUND IN . . . SAVE YOUR DOLLARS AND TIME!

Today, with mounting costs all along the line, *loading platform congestion* is a serious problem. No matter how much money you pour into new tools and methods—inadequate shipping facilities will always eat into your profits.

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FEATHERWEIGHT

MODEL 87

GOLDAK

PIPE LOCATOR

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- Shows - not approximate but *EXACT* location of buried pipes, mains, services, gates, tees, ells, stubs, etc.
- Completely new electronic circuit provides an incomparably strong positive location signal.
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- Operating simplicity. A one-man instrument.
- Featherweight - only 11 lbs. complete.
- Guaranteed superior performance - resulting from 15 years of electronic research and construction of locating instruments.

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All new Jaeger sizes—75 to 600 ft.—give comparable work increases.

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***Throughout America* Dickinson Lawn Seed**

In parks and on public grounds throughout America you will find smooth velvety lawns built with time proven Dickinson lawn grass seed. Quality seed, blended according to formulas that have been tested and improved throughout the years. Write for complete information.

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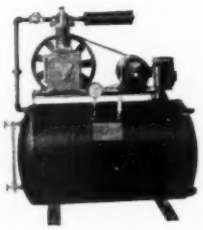
AUTOMATIC POWER OR TANK PRIMERS
SINGLE OR DUPLEX UNITS
DUAL DRIVE WITH GASOLINE ENGINE
ALL UNITS ENTIRELY AUTOMATIC

AIR RELEASE VALVES

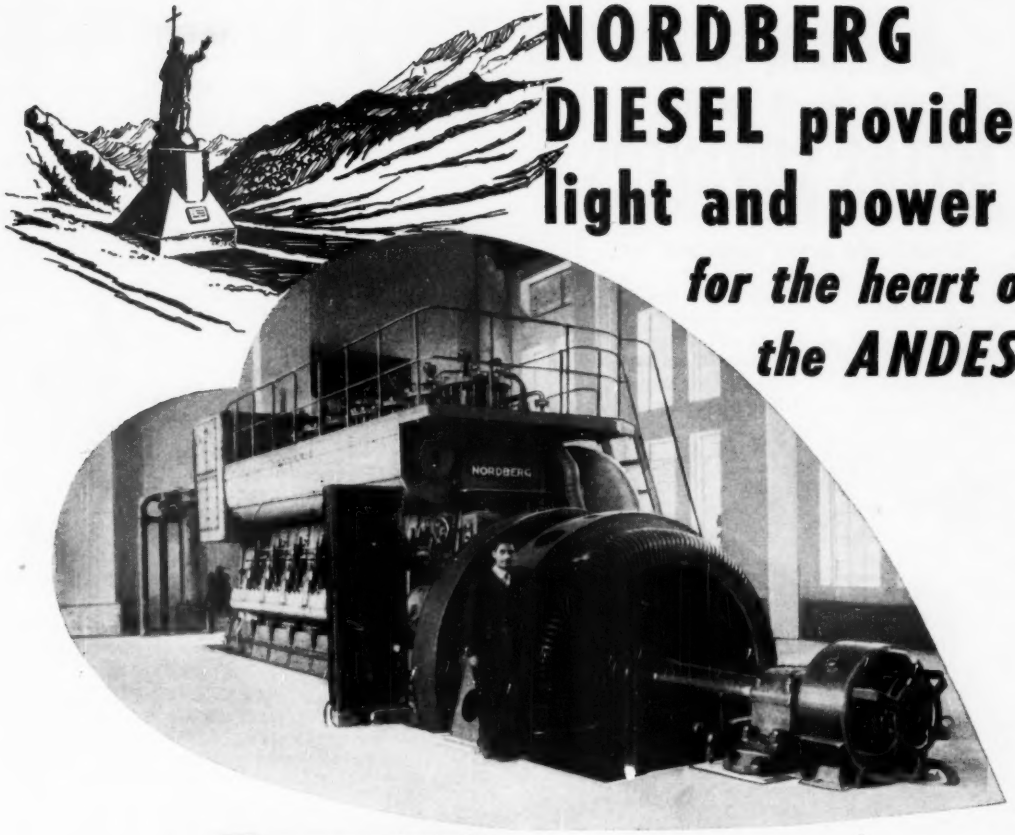
FOR VENTING AIR OR GASES
17 TYPES

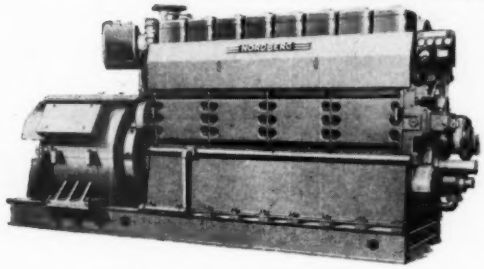


No. 2V-APCO

VALVE AND PRIMER CORPORATION 127 NORTH DEARBORN ST., CHICAGO, ILL.

NORDBERG DIESEL provides light and power *for the heart of the ANDES!*





Shown in the large view above is the seven-cylinder Nordberg two-cycle Diesel w'ich drives a 1000 K.W. generator—at an altitude of 8250 feet—for the city of Cochabamba, Bolivia. The smaller view directly above shows a typical Nordberg four-cycle stationary Diesel unit. Engines of this type are built in sizes from 175 to 1900 H.P.

WHEN you are specifying an engine for those out-of-the-way locations, the one thing you are interested in more than anything else is dependability. You want an engine that will keep running.

Nordberg engines in service all over the world have established enviable records for reliable operation. One such installation is in the power plant of the Luz Y Fuerza Electricia located in the heart of the Andes, generating light and power for the city of Cochabamba, Bolivia.

If you are interested in dependable power secured at low cost, investigate the merits of Nordberg Diesel Power, in sizes from 10 to 8500 H. P.

NORDBERG MFG. CO., Milwaukee 7, Wis. P449

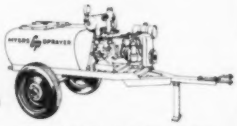
Keep quality in mind and you'll specify

MYERS SPRAYERS

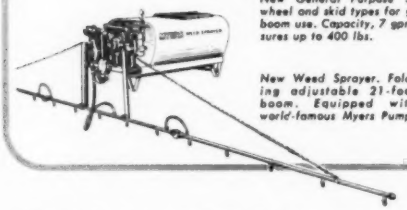
MODELS FOR EVERY MUNICIPAL USE

2-wheel, 4-wheel and skid-type models; capacities up to 50 gpm., pressures up to 800 lbs.

- Spraying shade trees
- Spraying shrubbery
- Weed and pest control
- Whitewashing and disinfecting
- Flushing streets and gutters
- Stand-by fire protection



New General Purpose Sprayer, wheel and skid types for gun and boom use. Capacity, 7 gpm; pressures up to 400 lbs.



New Weed Sprayer. Folding adjustable 21-foot boom. Equipped with world-famous Myers Pump.

City after city is putting the stamp of approval on Myers quality — by specifying Myers Sprayers for every municipal need. They're thoroughly sold on the dependable, thrifty performance for which Myers Sprayers are universally recognized. They know, too, that the Myers line gives them greater choice of types and sizes to best fit their specific requirements.

There's a valuable clue for *you* in this ever increasing standardization on Myers Sprayers. It emphasizes their sound construction, modern engineering and all-round reliability. It makes selection of the *right* sprayer an easy certainty. Mail coupon for folder describing the full-range Myers line of sprayers and matching accessories.

THE F. E. MYERS & BRO. CO.
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Send folder showing sprayers for municipal use to:

NAME_____

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YOU GIVE your citizens quick effective insurance against dangerous driving conditions when you use the BAUGHMAN Spreader.

FAST ACTION! Spreads 8- to 30-ft. widths at speeds up to 25 mph. *ALL-WEATHER OPERATION*—built-in exhaust heater prevents freezing of conveyor chain and material . . . keeps material in working condition. *CUTS COSTS*—self-unloading, it's operated by one man.

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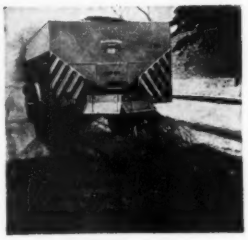

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Baffle plates limit width of spread . . . stop waste . . . prevent damage to passing cars and injury to pedestrians. Completely regulated volume . . . uniform spreads.

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RUGGEDLY BUILT on Baughman's efficient production line. Result: lower production costs—and the savings are passed on to you.

READY TO SHIP on receipt of your order. You can start giving your citizens protection *this winter!*

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BAUGHMAN

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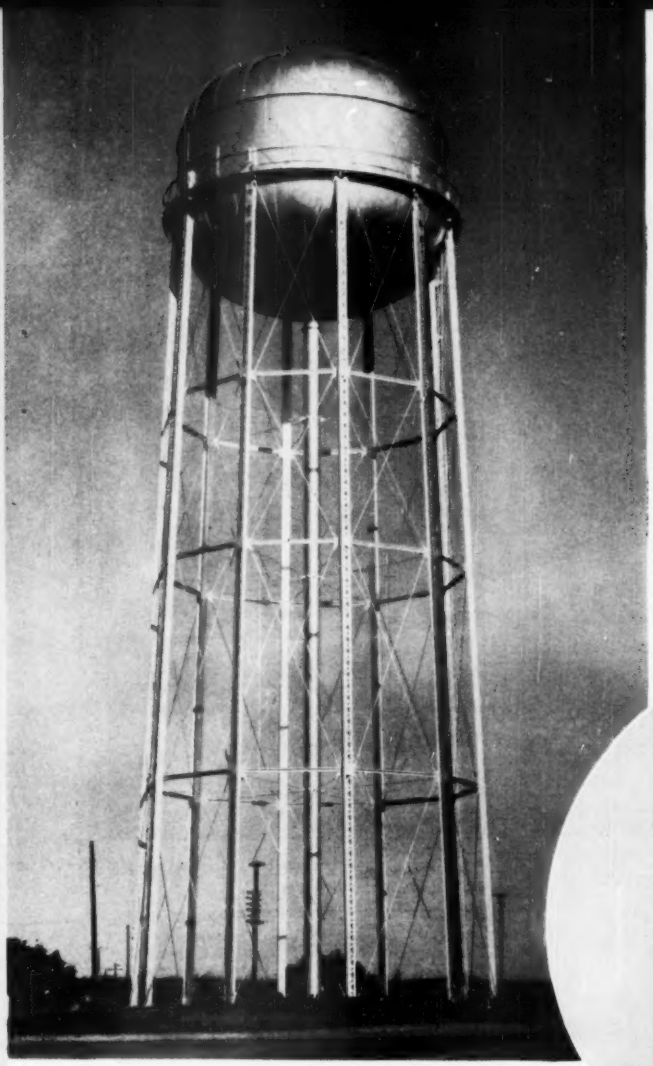
241 Shipman Rd. Jerseyville, Ill.
"There is a Baughman Distributor Near You"



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Indicating the flexibility of even a single type of Pittsburgh-Des Moines Elevated Steel Tank, these examples of our Double-ellipsoidal design can be multiplied by a host of special water storage applications. • Write for our latest Bulletin, detailing the complete range of P-DM Elevated Steel Tanks.

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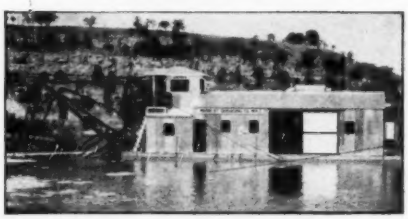
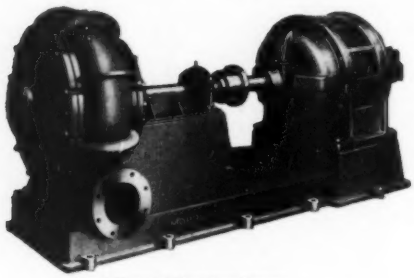
Should your dredging jobs occur in different cities or states, Morris will build a portable dredge. Quickly and easily dismantled, you can move it from place to place at minimum expense.

All dredges are complete with electric motors, Diesel or gasoline engines . . . permanent or portable hull . . . rigging, hoist, spuds, ladder . . . ladder head and any of various cutters . . . piping and fittings. Morris will also furnish an operator, if necessary, for an initial period of time until your own operator learns how to operate and maintain the dredge.



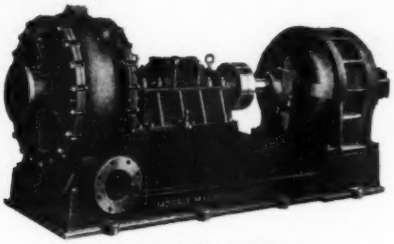
The Midwest Dredging Company Dredge—one of the newest Morris installations.

FOR MORE THAN 87 YEARS, Morris has built dredges and dredging machinery for almost every requirement.



Lined Material-Handling Pumps

Specially built for handling highly abrasive materials. Maximum resistance to wear.



Sand, Gravel and Dredging Pumps

Built in standard, medium duty and extra heavy types, in sizes from 4" to 36", with electric motor, steam, Diesel or gasoline engine drive.

ORDER NOW! If you need your dredge in the spring, now is the time to order it. Write for free bulletin today!

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Branch Offices in Principal Cities

MORRIS *Centrifugal Pumps*

"But what ails Henry, Doctor?"

MAJOR credit for the virtual wiping-out of the typhoid fever scourge of 50 years ago is due to the growth and progress of public water works systems. In 1899, when our Company was established, there were about 3,000 public water works systems in America. Today, 12,000 water works furnish 85 million people with eight billion gallons of water per day, 90 per cent of which requires and receives treatment to make it safe.

The gas industry and sanitation have also made notable contributions to better health and living in the past 50 years. Today, over 20 million families use gas for cooking, refrigeration, or home heating. More than half of our urban population is now served by 6,000 sewage treatment plants.

As the largest producer of cast iron pressure pipe for water, gas and sewerage service, we too can look back on a half-century of progress in manufacturing methods, production standards, quality controls and facilities for research and development. The service records of our early product are truly remarkable, yet U. S. Cast Iron Pipe as we make it today is demonstrably superior—in strength, in toughness and in uniformity.

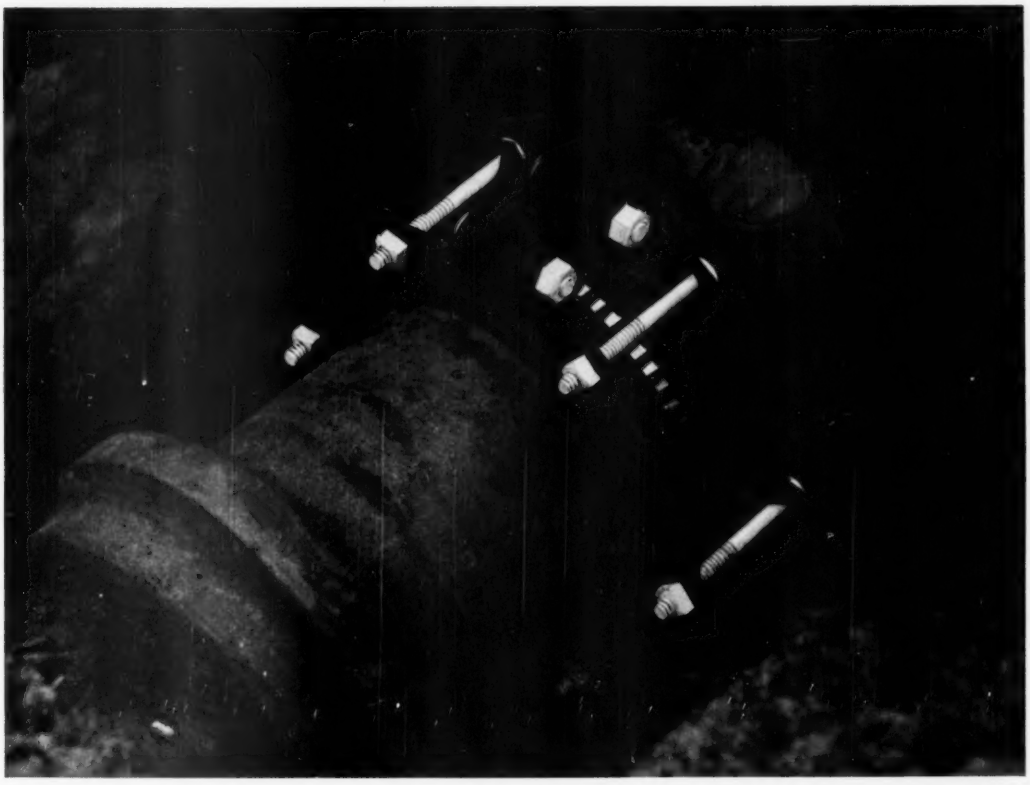
To those responsible for the great progress in water supply, gas and sanitation service and their contribution to better health and living over the past fifty years, America pays tribute.

U.S.
CAST IRON
PIPE

1899-1949
U. S. Pipe & Foundry Co.
Makers for 80 years of cast iron pipe for water, gas and sewerage service.
General Offices: Burlington, N.J.

Double-Duty
TROUBLE SHOOTER

Sanitation HTH is the handiest trouble-shooting assistant you could want. Use double-duty HTH for dozens of daily sanitation jobs as well as disaster-size emergencies. Water works men all over the country have found it pays to stock enough HTH for quick, on-the-spot chlorination—anywhere, anytime. A free copy of Mathieson's 48-page manual—"Hypo-Chlorination of Water"—is waiting for you. Write for it. Mathieson Chemical Corporation, 60 East 42nd Street, New York 17, N. Y.



One man repairs broken main!

Skinner-Seal Bell Joint Clamps stop bell and spigot joint leaks under pressure. Gasket completely sealed by Monel Metal Seal Band! Sturdy malleable iron rings. Large 3/4" high-tensile steel bolts, cadmium plated. Send for Catalog 41.

5 TO 15 MINUTES

SKINNER-SEAL SPLIT COUPLING CLAMP makes dependable, lasting repair. One man can install in 5 to 15 minutes! Clamps built to outlast main. Gasket is completely SEALED and protected; at break by Brass Band, at top where compression rings intermesh by Monel Metal Seal Band, at sides by hard vulcanized Gasket Tips.

Insures against recurrence of trouble by introducing a degree of flexibility in the line. Each clamp tests to 800 pounds line pressure. Be prepared — order today. M. B. SKINNER CO., SOUTH BEND 21, IND.

SKINNER-SEAL SPLIT COUPLING CLAMP

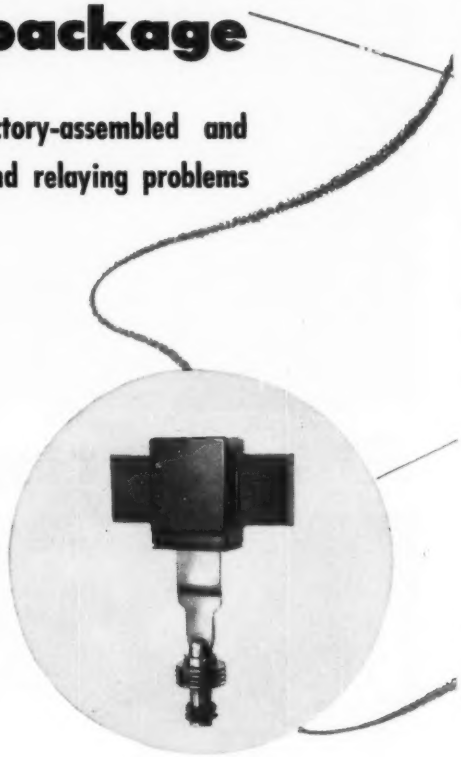
all these devices

co-ordinated

in one functional package

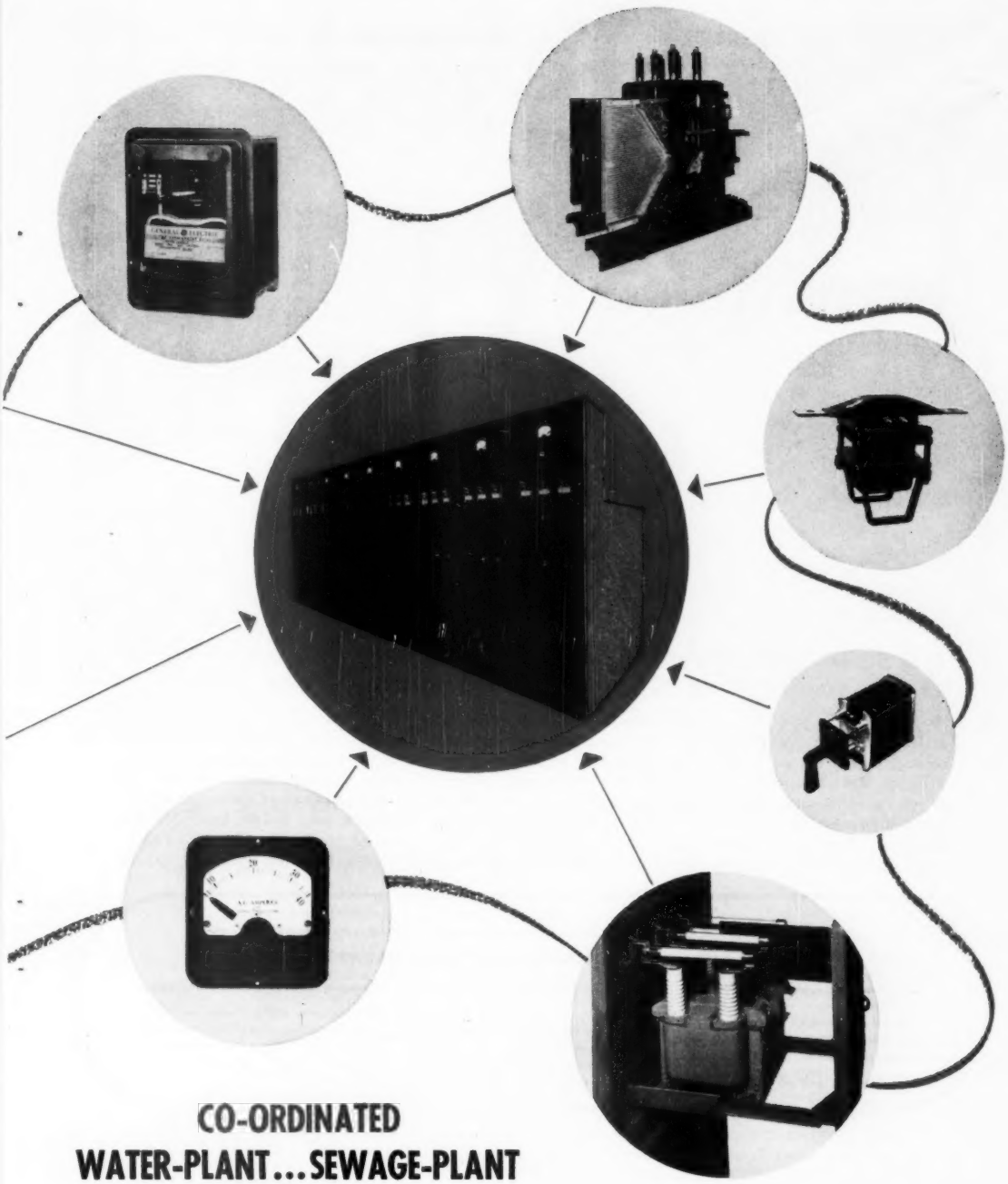
G-E metal-enclosed switchgear designed, factory-assembled and tested to solve all your protection, metering and relaying problems

A simple, one-line diagram is all the information our water and sewage engineers need to go to work on your power-distribution problem in new or expanding plants. From this diagram they can help you plan your distribution system and the necessary switchgear control and protective equipments to provide efficient flow of power to your load areas. These equipments will include circuit breakers of adequate interrupting capacity, relay protection, instrumentation and other associated devices, assembled and interconnected within streamline metal enclosures.



More Information?

Your consulting engineer or General Electric representative will tell you more about these equipments and help you plan your entire electrical layout. Consult him early, so that you can profit by co-ordinated planning and thereby simplify engineering, construction and installation. *Apparatus Dept., General Electric Company, Schenectady, N. Y.*



CO-ORDINATED
WATER-PLANT...SEWAGE-PLANT
ELECTRIFICATION

GENERAL ELECTRIC

HERE'S MORE POWER TO YOU!

NOW... 3½ YEARS

OF EVIDENCE FROM USERS LIKE THESE

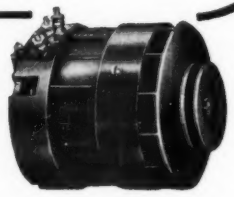
LEECE-NEVILLE HIGHER-OUTPUT A-C GENERATING SYSTEMS KEEP BATTERIES UP—COSTS DOWN . . . SUPPORT MORE ACCESSORIES!

● In the three years since their introduction, Leece-Neville *HIGHER*-output A-C Generating Systems have been applied so successfully on so many thousands of municipal and other vehicles, their acceptance is established throughout the nation. If *you* could use more electrical power to advantage in the operation of your equipment, here are the original A-C systems that will pay for themselves many times over by keeping batteries fully charged—prolonging battery life—eliminating battery maintenance. Further, their amazing output will permit you to use accessories without limitation and add accessories as you choose. Get all the details at your nearest Leece-Neville Service Station or write *The Leece-Neville Co., Cleveland 14, Ohio.*

The original A-C Systems are still the *only* ones offering all these *proved* advantages!

- Alternator systems can provide 35 amperes (or more) with engine idling and full output at all driving speeds to keep batteries fully charged while supporting the unlimited use of accessories.
- Weigh less and require less space than D-C equipment of comparable rating.
- Require less maintenance and operate with less danger of burn-out because Alternator has no commutator with commutating brushes or no rotating armature windings to cause sparking.
- Eliminate radio "fade out" and range reduction caused by weak batteries—hold radio noise level to an absolute minimum and prolong life of radio equipment.

THIS ALTERNATOR is the heart of the popular Leece-Neville 7-volt A-C Generating System which meets every output requirement up to and including 80 amperes. 14-volt systems available with ratings of 60, 80 and 150 amperes.



LEECE-NEVILLE

Pioneer and STILL Quality Leader

CRANKING MOTORS • GENERATORS • VOLTAGE REGULATORS • SWITCHES

Barber-Greene

Standardization
gives you a "custom-built" permanent B-G Conveyor system at "ready-made" cost. You benefit, too, by complete interchangeability and adaptability of units. You can shorten, lengthen or move your conveyor as your needs change.

less "blueprint work" easier assembly with standardized conveyors . . . .

It's easier to select the right B-G Conveyor for your particular job—and easier to install it. That's because B-G Conveyors are *pre-engineered* and built of simple *standard* units.

Erection is little more than a matter of bolting the *standardized* units together. Frames and terminals are *pre-fabricated* . . . delivered to you, clearly marked, as complete, self-contained units. Drives and take-ups are factory-assembled, checked, tested and rated for load. B-G *pre-engineering* assures proper alignment and smooth, dependable operation on the job. What's more, you have a wide choice of equipment in the sizes and types that best meet your requirements.

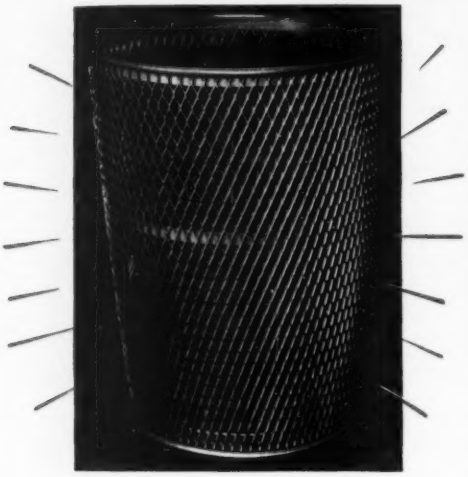
Here's a "packaged" plan that may well provide the practical solution to one or more of your haulage problems. Why not call on our engineers to help you work out an efficient, economical system?

BARBER · GREENE COMPANY AURORA, ILLINOIS

Constant flow Equipment

LOADERS PERMANENT CONVEYORS PORTABLE CONVEYORS COAL MACHINES BITUMINOUS PLANTS FINISHERS DITCHERS

Yes, there's Psychology in this refuse container



To keep refuse off lawns and sidewalks you want a refuse container *that invites use.*

Here it is, the Wheeling Municipal Refuse Container—good looking, ideal for streets, parks, cemetaries, industrial plants.

Despite its good looks, folks don't mistake it for a mail box or something else. And, with its wide open top, they find it's no effort to drop their refuse in it instead of on the ground.

Ruggedly built and reinforced. Body of *one piece* Expanded Metal. Pleasing lines. Attractive color. New all-weather coating. LOW IN COST.

Wheeling

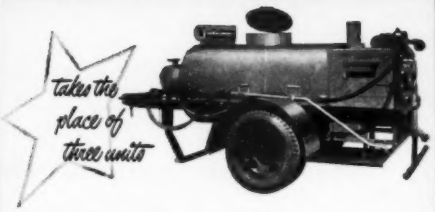
Write for details direct to the home office:

WHEELING CORRUGATING COMPANY

WHEELING, WEST VIRGINIA

for low-cost road maintenance use

LITTLEFORD 101 UTILITY SPRAY TANKS



FOR A UTILITY UNIT to do Road Maintenance work the Littleford No. 101 was designed to do just that. Here's an outfit that can do the work of three units—it has a spray bar for doing small application jobs, a hand spray attachment for doing patch work and a pouring pot outlet for doing patch work or crack filling. This 101 Unit has a fast heating system including U type heat flues with Littleford Vaporizing Torch Burners. The No. 101 will handle Asphalt, Tar, Emulsion, Road Oils or Cutback. Made in sizes to fit any road maintenance job. For further details see your nearest Littleford distributor.

MANUFACTURERS OF

"Tankar" Steam Heaters
"Kwik-Melter" Roofers Kettles
Trail-O-Rollers
"Spray Master" Pressure Distributors
Highway Brooms
Tool Heaters
Trail-O-Distributors

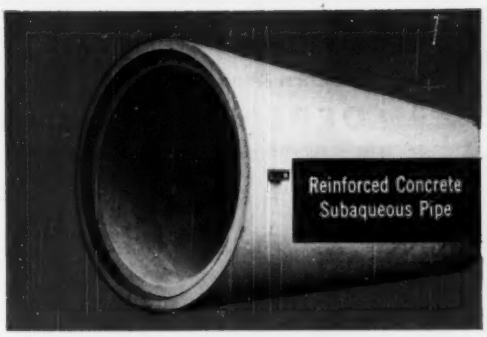
Asphalt Supply Tanks
No. 101 Utility Spray Tanks
84-HD Asphalt Kettles

LB LITTLEFORD

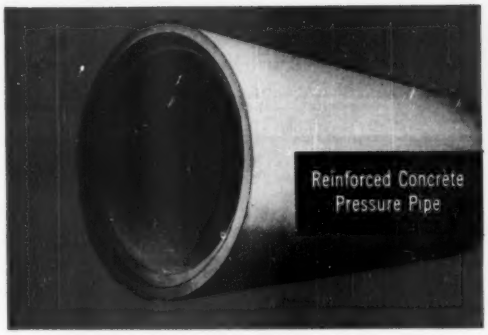
BLACK TOP ROAD MAINTENANCE EQUIPMENT SINCE 1900

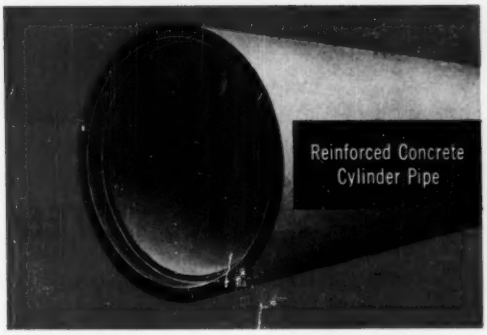
LITTLEFORD BROS., Inc.

500 East Pearl St., Cincinnati 2, Ohio



let LOCK JOINT solve your water supply problems





Lock Joint's four designs of reinforced concrete pressure pipe answer any problem in the field of large-diameter water supply conduits.

All of these designs may be equipped with Lock Joint's flexible, self-centering Rubber and Steel Joint, which simplifies installation and reduces the initial cost of laying the line.

Lock Joint Reinforced Concrete Pressure Pipe is made in all standard diameters from 16" up, and will withstand any pressure common to American water works practice.

★ ★ ★

Your inquiry at any of the Company's offices will receive a prompt reply.

LOCK JOINT PIPE COMPANY

Est. 1905

P. O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS
Wharton, N. J., Turner, Kansas

BRANCH OFFICES:
Cheyenne, Wyo. • Denver, Colo. • Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. • Wichita, Kan. Kenilworth, N. J. • Hartford, Conn.

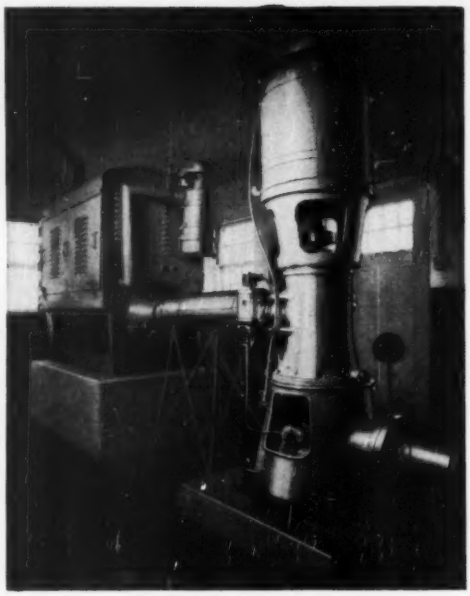
LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

SCOPE OF SERVICES

Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

★ ★ ★

When Power Lines Fail
Modern Municipalities
DEPEND ON



JOHNSON
Combination DRIVES

CONTINUOUS WATER SUPPLY... protects the public health and reduces fire hazard.

FLOOD DAMAGE . . . insures 24-hour operation of drainage pumps in any emergency — day in and day out.

RESERVE POWER . . . will transmit additional power to meet emergency requirements . . . instantly available.

SEWAGE. . . long record of use in Sewage Systems for continuous 24-hour constant service.

ADAPTABLE . . made in a wide range of sizes and types to meet varied application.

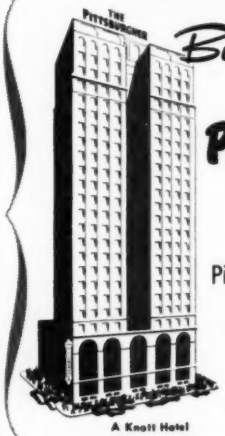
INVESTIGATE BEFORE IT'S TOO LATE. Hundreds of municipalities throughout the country rely on the Johnson Combination Gear Drives for supplementary power. (See illustration.) Send for catalog and full engineering details.

JOHNSON GEAR
AND MANUFACTURING CO.
MAIN OFFICE & WORKS • BERKELEY 2 • CALIFORNIA

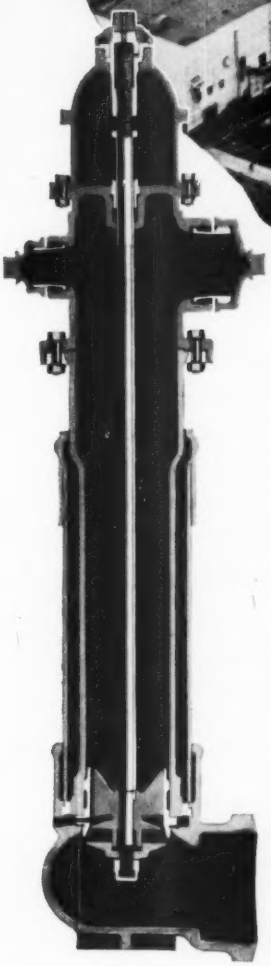
WORTHINGTON-GAMON

LIQUID METERS
All Sizes All Types

Worthington-Gamon Meter Co.
Subsidiary
WORTHINGTON PUMP & MACHINERY CORP.
296 South Street Newark 5, New Jersey



Busy people choose
THE PITTSBURGHER HOTEL
In the heart of Pittsburgh's Golden Triangle . . . near the important office buildings, stores and theatres.
JOSEPH F. DUDDY, Manager
A Knott Hotel



MERCED, CALIF.

"One of America's Safest Cities"
THE MATHEWS FIREMEN SAY

THEY FIGURE IT OUT THIS WAY: Merced, California is protected by Mathews Modernized Hydrants, and wherever these hydrants are, *there* is safety plus.

Some Mathews in service today started their long and trouble-free life even before there was a seedless orange in the state of California. This *proved* dependability, plus the most modern features, makes today's version of the time-honored Mathews a standard by which all hydrants are judged. The thread is proof against rusting and deposits of silt. The revolving nut is protected against rain and wind-borne dust. The main valve is true compression-type; the drain valve drains perfectly dry. All working parts are contained in a removable barrel—easily and quickly replaced when every second can count.

Send for descriptive literature. Read for yourself, point by point, why there are over 500,000 Mathews in service today, and why you owe it to your community to provide this safety plus.

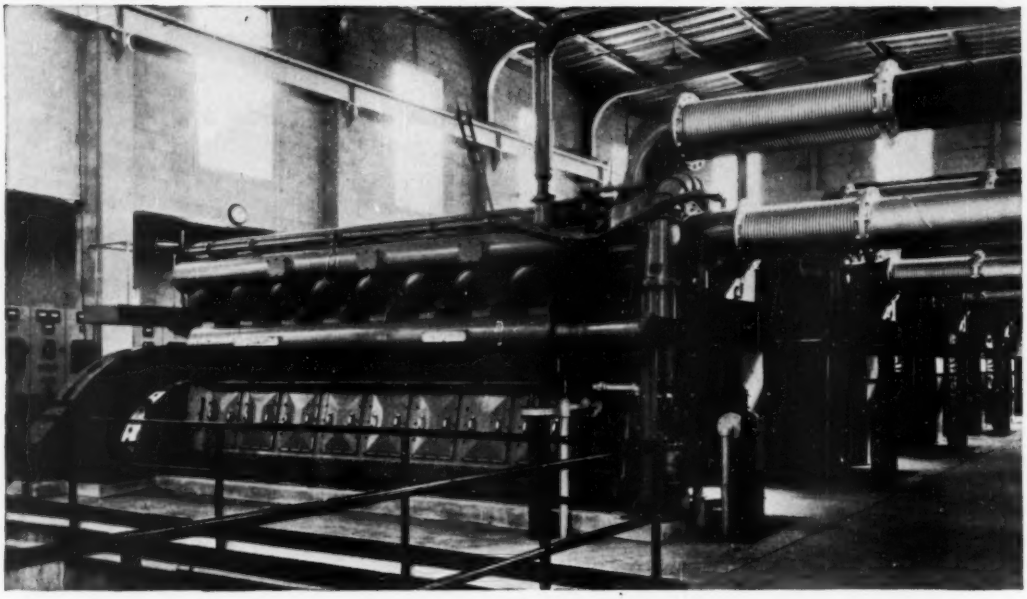
OTHER MATHEWS FEATURES: Head can be rotated 360° • Replaceable head—nozzle outlets easily changed • Nozzle levels raised or lowered—no excavating • Stuffing box cast integral with nozzle section • Only one part to lubricate—operating thread • A modern barrel makes even the oldest Mathews new

MATHEWS HYDRANTS

***Made by* R. D. WOOD COMPANY**

Public Ledger Bldg., Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves



SUPERIOR has been elected *Again!*

Superior Diesels are being used for more and more installations where a dependable source of power is important. Like the North Carolina town that recently built a power plant to meet its expanding industrial and domestic requirements. Five supercharged, model 80-GX-8 Superior Diesels driving 1,000 KW generators were chosen to power this important new plant.

There are some good reasons for this constantly growing acceptance. Superior Diesels are economical to operate and maintain. And they provide top performance day-after-day because of the following features:

Conservative Ratings • Efficient Pressure Lubrication • Clean Combustion • Precision Bearings • Heavy Rigid Crankshafts • Strong Bases and Cylinder Blocks • Proved Roller Chain Camshaft Drives • Oil Cooled Pistons. We will be glad to send you a fully illustrated booklet that tells how these features can help you.

THE NATIONAL SUPPLY COMPANY
SUPERIOR ENGINE DIVISION
Plant and General Sales Office: Springfield, Ohio

THE NATIONAL SUPPLY COMPANY NSCO

Superior DIESEL

This MACK gives Munster

"THE BEST IN FIRE PROTECTION"

. . . says Chief Vander Vaart — Munster, Indiana, F. D.

"Munster, one of the fastest-growing communities in the country, was in need of fire apparatus. Accordingly, a very stringent and far-seeing set of specifications was presented by this department. Problems of present and future needs were not underestimated. A Mack was our resultant decision.

We have recently received delivery of our new Mack Type 85, 750-gallon triple combination pumper -- and can boast of this apparatus more than fulfilling our expectations. Its quality is superb in every detail. The powerful 707 cubic inch displacement engine is commensurate with the highly efficient pressure-volume centrifugal pump.

Now the people of Munster, our very able Board of Trustees and the Fire Department are assured of the best in fire protection."

Chief Vander Vaart's experience reflects that of more than 1,000 communities where Macks are regarded as the finest in fire apparatus. You'll give your community the best in protection, too, when you *Modernize with Macks.*

Mack

FIRE APPARATUS

Mack Manufacturing Corporation
FIRE APPARATUS DIVISION
Long Island City 1, New York

Factory branches and dealers for parts and service in all principal cities. In Canada, Mack Trucks of Canada, Ltd.

TRIPLE COMBINATION PUMPERS — 500 TO 2000 GALLONS . . . SQUAD WAGONS . . . CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

MANAGEMENT INFORMATION SERVICE

Dear Mayor or Manager:

You may need more tax dollars but first you had better be sure you are getting the most out of the dollars you now spend. Here is how 500 cities and towns are being more certain.

HOW MIS WORKS

You write, wire, or telephone for information on what is considered best practice in handling a specific municipal problem, what other cities are doing about it, what the trend is, etc. For over three decades the International City Managers' Association has collected on a nationwide basis a vast amount of information which it now makes available to all cities on a subscription basis.

MIS ALSO INCLUDES

1. In addition to replies on specific inquiries, subscribing cities receive from one to 12 subscriptions (depending on size of the city) to the monthly journal, Public Management, published since 1919, and devoted to the improvement of municipal administration.

2. Cities also receive from one to 10 copies of The Municipal Year Book, the authoritative resume of the activities and statistical data for more than 2,000 American cities, published since 1934.

3. One copy each of special information reports issued monthly. Partial list of recent reports:

Administration of Non-Property Taxes
Current Pay Rates for Selected City Jobs
Parking Meter Administration
How to Codify Municipal Ordinances
Rules of Order for City Councils
Trend Toward One-Man Police Cars
How to Reduce Insurance Costs
Procedure in Establishing Merit System
Personnel Rules and Regulations
Management of Motor Equipment
Work Programs and Annual Budget Estimates
The Making of Administrative Decisions

SUBSCRIBING CITIES

Cities with populations from 1,000 to 400,000 in 46 states subscribe to this Service. The number of subscribing cities as of March 1 was 513. Typical cities according to population are:

Over 100,000—Cambridge, Mass.; Charlotte, N. C., Denver, Colo.; Kansas City, Mo.; San Diego, Cal.
50,000-100,000 — Columbus, Ga.; Covington, Ky.; Madison, Wis.; Portland, Me.; Verdun, Que.
25,000-50,000 — Ashtabula, O; Clarksburg, W. Va.; Dubuque, Ia.; Jackson, Mich.; Mancester, Conn.
10,000-25,000 — Bessemer, Ala.; Bismarck, N. Dak.; Gulfport, Miss.; Laramie, Wyo.; Sumter, S. C.
5,000-10,000 — Astoria, Ore.; Bozeman, Mont.; Fairlawn, N. J.; Montpelier, Vt.; Tucumcari, N. Mex.
Under 5,000—Auburn, Calif. Milford, N. H.; Quakertown, Pa.; Tooele City, Utah, Woodward, Okla.

WHAT MIS COSTS

MIS is available to all cities and towns on a subscription basis regardless of form of government. The fee varies with the size of the city from $20 for under 5,000 population to $400 for cities of 250,000 to 500,000. For more details write:

INTERNATIONAL CITY MANAGERS' ASSOCIATION
1313 East 60th Street **Chicago 37, Illinois**

ON THE Street Scene...

THE CONSTANTLY CHANGING STREET SCENE IN YOUR COMMUNITY means new streets must be laid out, older streets must be rebuilt and maintained.

International Crawler and Wheel Tractors plus matched earthmoving equipment are star performers in these shows. High in work performance, low in operating and maintenance costs, International tractors dig in and do—completing work on schedule.

Look in on your International Industrial Power Distributor and see the hit show features of International Power and International-powered equipment. With these machines in your cast, municipal costs shrink. Your community will applaud your choice of International Power.

INTERNATIONAL HARVESTER COMPANY • Chicago

LISTEN TO JAMES MELTON ON "HARVEST OF STARS" EVERY SUNDAY AFTERNOON ON NBC.

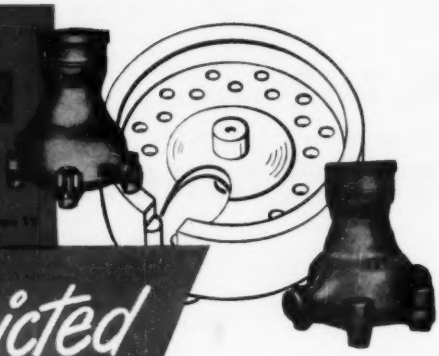
CRAWLER TRACTORS • WHEEL TRACTORS • DIESEL ENGINES • POWER UNITS

INTERNATIONAL INDUSTRIAL POWER

INTERNATIONAL HARVESTER

STANDARDIZE ON POWER THAT PAYS

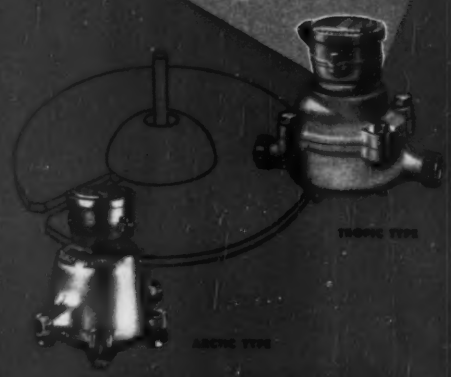
EMPIRE OSCILLATING PISTON METER



Type 14

Your Unrestricted Choice!

of two proven meter types . . . we've no axe to grind



PITTSBURGH NUTATING DISC METER

We make both oscillating piston and disc type meters. We advance no claims that one is better constructed than the other . . . for both are top quality products. We do say, and have service records to prove, that no single type of meter can successfully and at the same time economically meet all conditions.

Our experienced sales engineers will gladly analyze your water system and recommend the type and size meter best suited to your needs. *They have no axe to grind.* Hence recommendations can be made without prejudice and in the best interests of the community concerned.

PITTSBURGH EQUITABLE METER DIVISION

Pittsburgh 8, Pa.

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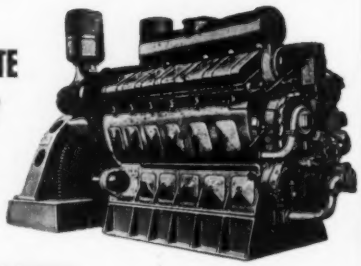

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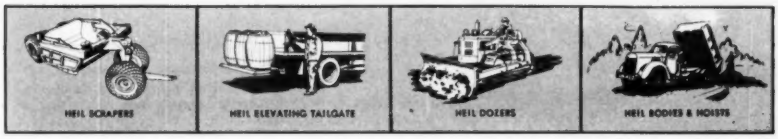

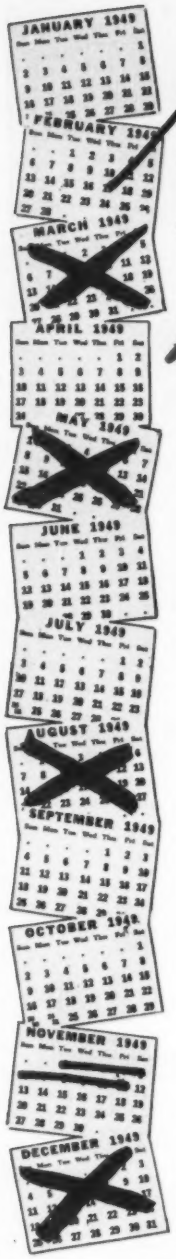

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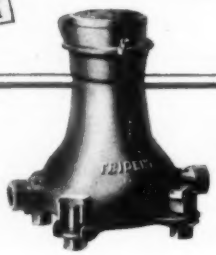

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Now and Then In Our Park Systems

By V. K. BROWN
President
American Recreation Society

A FOOTBALL team, they say, needs a college to represent. By the same token it might be insisted that a park system needs a city to serve. How otherwise, we might argue, can parks, like veritable reflector basins, mirror contemporary life and times.

Mirror them they must, apparently, that's their history. Perhaps, in Montesquieu's phrase, it's the spirit of laws we scarcely recognize, but which still govern park development. W. B. Van Ingen loved to elaborate this theme. He was a distinguished artist, whose murals adorn the Pan American building in Washington; in his leisure time, he was a student and devotee of landscape art around the world.

He insisted that park planning reflects the society it serves. Given the court of France, for example, with the ceremonial nature of social usage in its day, and predicated by that social system, are the formal gardens of Versailles, fountains, geometric symmetries, and all.

The influence of that pattern, he argued, spread to other old-world countries where mounting levels of dignity and rank prevailed in the social order; being true to such surroundings, there that landscape style took root. Because it was a Paris-sanctioned fashion, landscape formalism was imported even to America. It came with European gardeners. But it could not flourish in our informal social system, and ultimately, it yielded to forms more in keeping with a democratic social order.

Such a philosophy of the drive behind our park development finds some extremely interesting applications in the recent fiftieth-anniversary gathering of the American Institute of Park Executives, when that body returned after half a century to Boston, its birthplace, to discuss the changes time has brought in American parks.

Dean of the nation's park men, Theodore Wirth, as a surviving original member of the body presented a paper. It brought sharply into focus American parks of fifty years ago. It was the final appearance of that grand old figure, Superintendent Emeritus of the park system of Minneapolis, and long an inspiration to his entire profession. He has since passed over the horizon. There must have been a stirring reunion on his arrival inside those pearly gates. Frederick Law Olmstead, John McLaren, Frank Foster, Herman Merkel, and all the other stalwarts of park history must have given him a rousing welcome. And one suspects that very shortly a delegation waited upon Saint Peter to urge that while they didn't impute bad taste to the original planners, they nevertheless felt that some silvery olive trees would harmoniously relieve the cold bareness of all that pearl, to give a better first impression of those gates to new arrivals, and that lanes of overarching sycamores would relieve the monotony of streets of gold, vastly enhancing the comfort of the residents, even in paradise.

Such assumptions do not appear unduly speculative to any park man. He is aware of the history of his profession. A review such as the Boston conference provided shows him how his work has moved steadily toward democratizing his art, as he has sensitively responded to the needs of his public. His parks have mirrored the march of American individualism toward that participant sharing in possession and responsibility, in that faith in a disciplined freedom of use and enjoyment

This official poster and display sheet for "Park and Recreation Week" is available in bright colors on heavy paper 21 inches by 28 inches, or on card stock 11 inches by 14 inches. Special names or slogans can be inserted in the lower space provided for a special imprint. Information on costs of these and other materials may be obtained by addressing Park and Recreation Week, Room 1305, 116 South Michigan Avenue, Chicago 3, Ill.*

* See page 5 of this issue of THE AMERICAN CITY.

which are of the very essence of our democratic social order. And he feels that that is as it should be, in the best of all possible hereafters.

Unlamented Changes

Reminiscing at the convention, almost within a stone's throw of Boston Common, threw spotlights onto many of the features of fifty years' flight from the formal and untouchable. Unlamented maps of the world, or portraits of Abraham Lincoln done in variegated foliage in formal flower beds, have vanished from park stretches of lawn, and the turf itself invites contact with the good earth not by sight alone, but also as Ruskin urged, by the enjoyment of it under freely wandering feet, or as a pillow to children's drowsy heads. Gone, too, are such ordinances as "No person shall play at ball, cricket, or any other play or game whatsoever, in any of the enclosed public parks or grounds in this city under penalty of $5.00 for every offense." Games in parks are an "offense" no longer. That ordinance has vanished along with the decree that "no person shall walk, stand, or lie upon any part of the enclosed parks or grounds laid out and appropriated for shrubbery or grass."

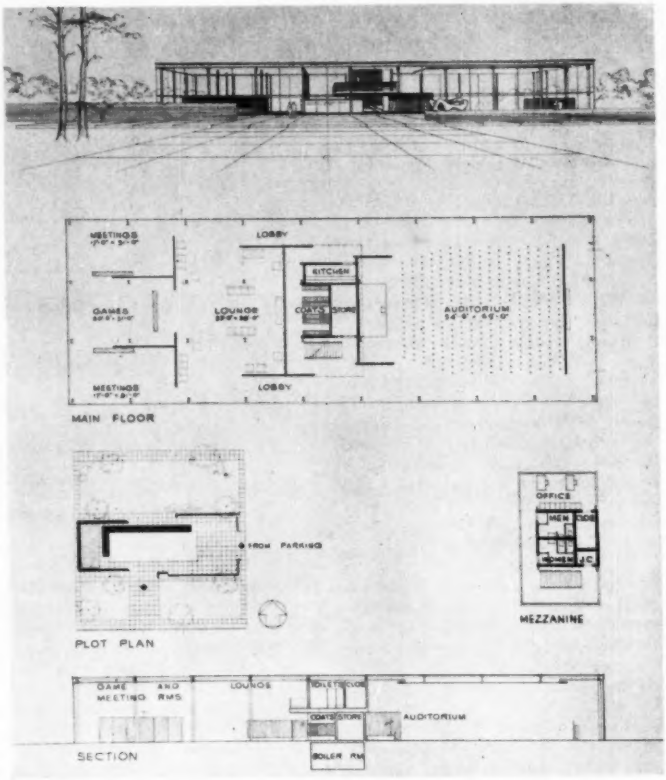
Such changes came hand-in-hand with changes in the folk ways of our people, rather than as a result of administrative decree. One of the molding forces which shaped park destiny was doubtless the bicycle which reached its crest of popularity as a fad just fifty years ago. The epidemic vogue of cycling with an almost universal demand for bicycle-path development, introduced into park administration a new respect for the force of public opinion. Later, the sport found its level—mass production brought inexpensive automobiles and bicycling was neglected for some years until its recent revival in popularity—but its influence remained a constant reminder that a park system is servant to its public, and its highest excellence is it responsiveness to public needs.

The Battle of the Swimming Suit

In my forty years of park work the Battle of the Swimming Suit looms up as the most impressive and sustained conflict between conservative attitudes and placating effort by park administration to satisfy public demands. Public swimming pools were originally walled about to save passers-by the embarrassment of seeing bathers. Those walls also afforded women bathers protection from curious observers. But even with such protections the suits we furnished had an apron fringe at the bottom for men, and baggy bloomers and knee-length skirts for women. Our ordinances required the skirt to extend within "four inches of the patella" because conservative public opinion demanded it! As counter-demand, any benefit from the sport and enjoyment of it required freedom of movement in the water. A glance at today's beaches tells which contention won. We photographed the stages of that evolution in a swimming-suit March of Time with results shown on page 113 when we dedicated a beach a few years ago.

Most graphic of the changes is the status of public recreation compared with its beginnings at the hands of one or two daring agitators fifty years ago. A prophetic group of devotees formed the National Recreation Association shortly thereafter, to direct public attention to the subject. From nuisance to necessity has been the course of recreation planning in park architecture, until now the word has come to imply appreciations of things fine and beautiful, including even those park scenes of loveliness whose guardianship originally caused the park man to shudder at the very word of recreation. That change, too, mirrors the changing times—now urging a recreation department even in the federal government, with every prospect of success.

A Glass-Walled Community Center



FIRST-prize-winning design by Joseph Y. Fujikawa of Chicago for a memorial community-center building for a hypothetical Middle West town of about 10,000 people, in a nationwide architectual competition sponsored by the Museum of Modern Art of New York City and the *Architectural Record*, for the purpose of discovering new talent. The glass-walled community center is designed to serve as a general meeting place for the town, augmenting the facilities of existing schools, churches, and civic buildings. One of the main requirements of the contest was to design a public building to arouse civic pride as well as to serve its particular function.

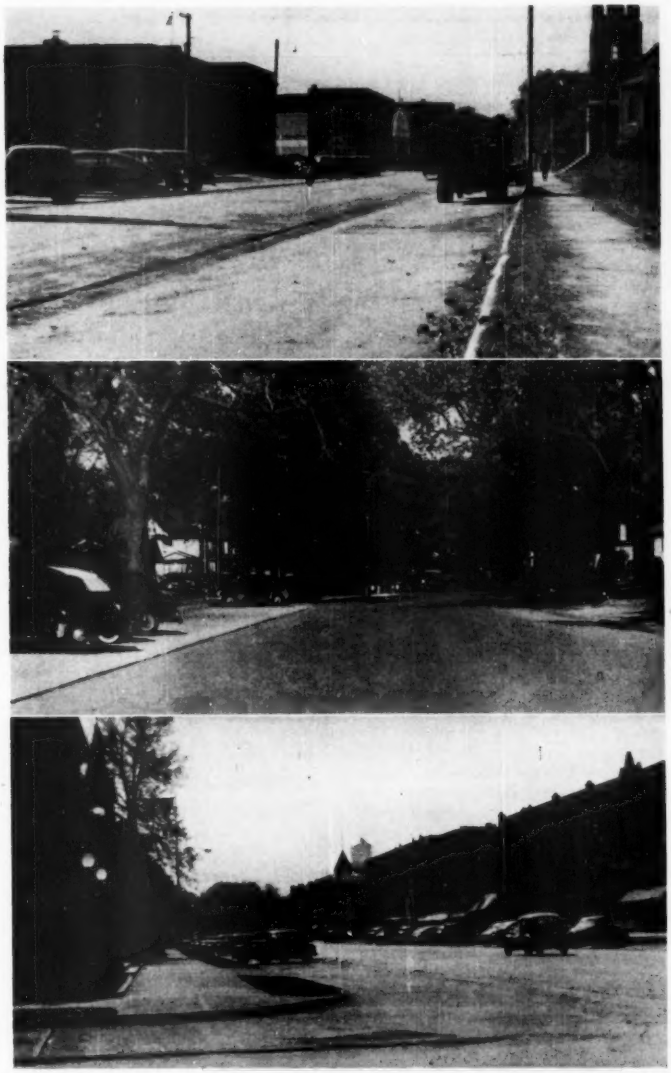
Forty other community-center designs, selected by a jury of internationally known architects, were displayed at the Museum of Modern Art in February.

Must Trees

Succumb To Traffic?

Here is what happened in Grinnell, Iowa

(Editorial Comment on Page 7)



Top: One of the new parking strips where trees had to be removed—the results are somewhat barren. Middle: On this street the parking areas were extended only as far as the trees. Bottom: This street, lying on one side of the business district, was widened in order to leave narrow plots of grass.

GRINNELL, Iowa (population 5,200), is a typical small-town trading center for farmers and the smaller communities. Week-ends bring extra traffic that overflows the business district of two city blocks. The late comer parks at a distance or circles around the block.

As to the parking situation, Grinnell had 5½ blocks where diagonal parking was possible on both sides of the street. One street, in the business district, was only wide enough to permit parallel parking for a distance of one block. Another street permitted diagonal parking on one side and parallel parking on the other. This was enough space for about 500 cars.

Objected to Parking Meters

A majority of the business men objected to parking meters because a survey indicated that most rural customers were opposed to them. Trade was already increasing in neighboring towns. Grinnell officials decided to widen the streets leading into the business district, as well as some streets actually in the district. A city-wide vote being unnecessary, the Council accepted bids and sold an entire bond issue of $155,000 (at 2% interest) to the William Blair Company in Chicago. The agreement called for payment of the debt on a yearly payment basis to be completed in 17 years.

When the contractor began work, it was found that the widening would require the removal of nearly 80 large shade trees. This was protested by older residents. Besides, Grinnell is the home of Grinnell College and people connected with the college felt the town would lose much of its atmosphere. When the tree-cutting started, protests and a petition halted the work while the City Council conducted hearings. Then fear of a possible suit for damages by the contractor forced the Council to order the removals resumed.

Widening Varied

In the final analysis, a total of eight blocks on four different streets were widened on both sides. Two more blocks were widened on one side only, one across the street from a factory at the edge of the business district, and one across the street from the local high school. The widening varied from 8 to 15 feet.

As the work progressed, damaged sidewalks and parkings had to be repaired. The city paid for the repair of all necessary damage and the contractor assumed the responsibility for the rest. The parking areas have been completed, plenty of space is available for everyone, and the farmers have almost room enough to bring their hayracks to town.

The Zoo—A VALUABLE CIVIC ASSET

By ROGER CONANT
Curator
Philadelphia Zoological Garden

NO ONE knows who started the first zoo. Man's propensity for keeping pets probably was the original impetus; the desire to give some reigning potentate a strange creature in order to gain favor was probably another. Several of the mighty emperors of the past assembled remarkably diverse menageries. China's "Intelligence Park" has often been cited as the first zoo of which there is any historical record. The Romans imported fantastically large quantities of wild beasts from Africa, Asia, and northern Europe, but their specimens, alas, did not survive long, for most of them were destined to perish in the Arena.

There are several scores of zoos in America today. Fixing the exact number is a difficult task, for no one yet has adequately defined a zoo in contrast with a menagerie. Some cities, with a few swans, a small herd of deer, and a bear or two in their public parks, can scarcely claim to rate with the great gardens exhibiting thousands of specimens and with plant investments mounting into the millions. About thirty zoos are large or outstanding in one fashion or another. Perhaps a dozen rank as the very best. Directors and curators are often asked to rate the gardens, to state which is the finest in the country, which is second, and so on. The wise zoo man, even though he thinks his own place the best of all, shies from the question. Some gardens have very large collections, but counting animal noses is not the answer. One rhinoceros, panda, or gorilla is worth many hundreds of birds or reptiles. Quality is important, too! Northern zoos must spend large sums for buildings where heat can be supplied in winter; collections in the South require little shelter. Rating zoological parks is a tricky and difficult business. Oldest institution of the kind in the United States is the Philadelphia Zoological Garden, now celebrating its seventy-fifth anniversary. Unlike some of its contemporaries, which started with a few animals in a public park, the Philadelphia Zoo sprang into being as a full-fledged organization. Its gates first opened on July 1, 1874, but the Zoological Society of Philadelphia was established in 1859.

Sources of Revenue

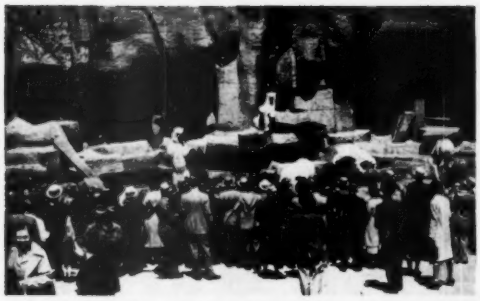
Most American zoological gardens are free. A few charge a nominal admission fee every day; others charge on only a few days each week. Support, in the main, comes from public funds which may be appropriated annually or which may derive from a stipulated percentage of the local tax receipts. In several cities, when the question of assistance for the zoo was placed upon the ballot, the electorate voted to increase its taxes for this worthy purpose. Financial backing may come from other sources. Many of the largest, most successful zoological gardens are either operated outright (or are enthusiastically aided) by zoological societies. Such public-spirited organizations can do a vast amount toward arousing popular interest. Often the zoological society raises funds to buy the animals and the municipality takes care of housing and maintenance. Income from concessions can be an important item; some of the more progressive gardens are profiting handsomely by operating their own souvenir and refreshment businesses. Endowment funds are valuable assets for those institutions fortunate enough to have them. There are also the all-important godfathers—men who realize the educational and recreational value of a good zoo and who repeatedly reach down into their own pockets to purchase specimens for exhibition.

For attracting people from out of town, a zoological park is unexcelled. Not only do the animals themselves appeal, but the doings of the birds and beasts, the arrival of new ones, and the establishment of new displays are all duly recorded in the newspapers and are aired via radio and television. Probably no other institution enjoys such a favorable and enthusiastic press. Any good zoo is bound to publicize the city in which it is situated.

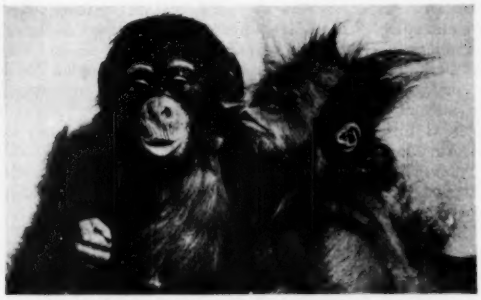
Exhibiting Methods Change

Methods of exhibiting animals have changed radically in the past few score of years. The zoological garden of yesteryear has been described as a collection of "cell blocks," as a place where bars and fences were far more prominent than the livestock they restrained. In addition, sanitation and ventilation were totally inadequate. But now, the situation has been vastly altered. Many kinds of animals, including elephants, rhinos, hippos, lions, tigers, bears, monkeys, and dozens of other types are displayed in large, open-air enclosures where they may be seen to perfection and with the complete absence of bars and wire. Cleverly constructed and partially

Fifty million people will crowd their way into American zoos this season to demonstrate again that animals are tops in popular appeal. Carloads of peanuts and popcorn will be fed to the elephants, bears, and raccoons. Business men who wouldn't tolerate a minute's delay at the office will stand by the hour watching the monkeys cavort. Zoos are ideal for fun and relaxation, and their educational value cannot be overestimated. A zoological garden is one of the most valuable assets any city can have.



Visitors at the Chicago Zoological Park, Brookfield, always enjoy the clowning and pan-handling antics of the polar bears.



The Philadelphia Zoological Garden, now celebrating its seventy-fifth anniversary, has won world-wide acclaim for its success in breeding apes and monkeys.

The bowling scene is one of the amusing skits in the St. Louis Zoo's Elephant Training Act. The bowler is Marian, the scorekeeper Clara Belle, and the pin boy is Vi.

The Liberian tigers at the Detroit Zoo enjoy a sylvan setting. Their moat is filled with water, and they think nothing of diving in and taking a swim when the spirit moves them.

Zoorookery, 2½ acres of rock garden-like bird sanctuary in the Lincoln Park Zoo, Chicago. Over 250 birds, cormorants, pelicans, flamingoes, etc., have the run of the entire exhibit.

In the Bronx Zoo's African plains exhibit, many types of animals from the Dark Continent may be seen in open, barless enclosures resembling actual habitats.

The lion den at the San Antonio Zoo has been built in an abandoned stone quarry. The rear walls prevent animals from escaping. A moat separates them from the public.

Springtime view of the bird house, U. S. National Zoological Park, Washington, D. C. Some of the oriental trees are in bloom. The building was constructed in 1928.

concealed moats prevent the animals from escaping. Stress is laid upon natural habitats. At the New York Zoological Park, antelopes graze in full view of their mortal enemy, the lion, and the visitors are treated to a spectacle such as they would see only on the African Plains and upon which the exhibit is modeled. (The antelopes have long since learned they have nothing to fear; the lions are on the other side of a deep moat.) Rocky, barless dens, such as those at St. Louis, Detroit, and Cincinnati, show off the bears to perfection. So do rocky grottoes for lions and tigers, like those at San Antonio and the Chicago Zoological Park, at Brookfield, Ill. The modern zoo is a place of beauty, wherein arboriculture and landscaping are extremely important adjuncts to the zoological displays. Older zoos are modernizing their physical plants and exhibiting even their least important animals in attractive surroundings.

Policies vary from zoo to zoo. Efforts are made at some institutions to build up as large and varied collections as possible, ones to which both laymen and scientists can repair to inspect the infinite variety of wild life. The National Zoological Park (in Washington, D. C., operated by the Smithsonian Institution) is an example of this type. Other gardens display few species, but many of each kind; in them the herds and the large family groups give visitors some conception of the social life of animals in the wild. Many parks go in for rarities, especially the larger, more spectacular ones. Most popular of all, perhaps, are the "A-B-C" animals, the ones we all learned from our picture books when we were children.

Where Youngsters Can Study Nature

Most American zoos depend upon the natural antics of their apes and monkeys, their elephants and penguins, and all the rest to entertain the public, but some, notably the St. Louis Zoo, have gone in for trained animal acts in a big way. The public's desire to get into contact with the more harmless animals has led to the establishment of special exhibits, such as the Zoorookery at Chicago's Lincoln Park Zoo. Here visitors may closely approach many kinds of birds. Children's zoos have been extremely popular—so much so, in fact, that they have become an important source of revenue. For a small charge, youngsters (with or without their elders) may enter special, carefully supervised enclosures wherein are gathered small tame animals that may be touched, fed, and sometimes even fondled. The zoo has been long recognized as a place to learn about nature. Millions of youngsters will go to the zoos this year for class visits, acompanied by their teachers.

Many zoological gardens have attained recognition in special ways. The Philadelphia Zoo is famous for its success in breeding and rearing apes and monkeys. Milwaukee has had excellent results in raising polar bears. San Diego, with its extraordinarily fine climate, has been able to establish record after record for its husbandry of unusual stock. The Chicago Zoological Park was one of the first major zoos to install displays of invertebrate animals. The New York Zoo, through its Zoological Society, has taken a very important part in the vitally needed campaign for world-wide conservation of wild life and other natural resources.

The zoo animal of today has the benefit of man's recent great progress in the fields of sanitation and dietetics. Cages and enclosures are carefully constructed to insure cleanliness, foods are prepared in clean kitchens, and diets are carefully worked out to assure proper nutrition. Many zoos have hospital accommodations for ailing specimens. Some, like the institutions at Philadelphia, New York, and San Diego, maintain laboratories for the study of animal diseases.

It is indeed a far cry from the menageries of half a century ago to the fine zoological parks that are constantly winning acclaim all over the country. More and more cities are discovering how useful and valuable they can be. Cleveland might be quoted as an example. Until recently it boasted only a small, miserable zoo that would have been inadequate in a town only a fraction the size. Vast improvements are now underway and soon Cleveland will have a zoological garden ranking with the best in the country.

Enthusiasts visualize the day when virtually all cities of any size or consequence will have a zoological garden, be it large or small. Certainly the value of such exhibits has long since been demonstrated. Where is there a better place to spend a pleasant afternoon with the children or those visiting friends or relatives from out of town?

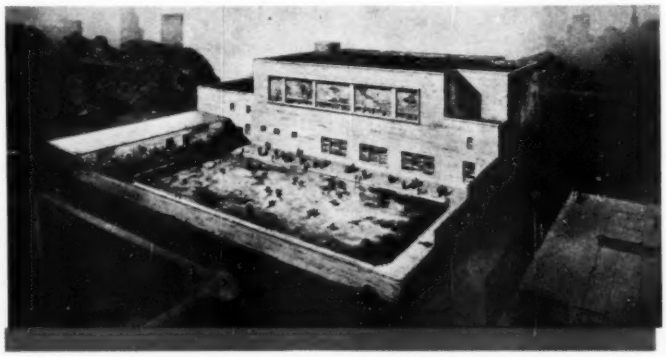
A New Recreation Center in Philadelphia

BELOW is a perspective sketch of the Moylan Recreation Center and swimming pool, which is being erected in a thickly populated district adjacent to the Glenwood Housing development, a low-cost dwelling project in Philadelphia. The center, which will cost $350,000, will meet the demands of a neighborhood sorely in need of recreation facilities.

The 60-foot-by-150-foot building, provided with a combination auditorium and gymnasium, is being built on a recreation block of 250,000 square feet including an athletic field for seasonal activities, and a play space for children's activities. A small decorative park with landscaped walks, a war-memorial tablet, and a flag pole adjoins the center at the west end of the lot.

The "unit frame" construction system of the building makes use of reinforced concrete and requires practically no structural steel. The community activities and arts and crafts rooms are provided with folding partitions to ensure flexibility in the use of the rooms. A large play area for children and those too young to use the main auditorium and large gymnasium is located on the ground floor. The 4,000-square-foot swimming pool and walks will be fenced off completely by a brick wall.

Frank E. Hahn, Colish and Etter, a Philadelphia firm of architects and engineers, were materially aided in planning the center by Mayor Bernard Samuel, Sara S. McNeil, Director of the Department of Public Welfare, and John V. Smith, Chief of the Bureau of Recreation.



Local Democracy Gets a Workout

Democracy, American style, gets a good workout, once a month or oftener, when the Village Board of Goshen, ancient seat of Orange County, N. Y., holds a special or stated meeting—both open to the public. Citizens of both genders pop in, pop off, and pop out, angry or mollified, but satisfied on one point: The right of free speech has been exercised untrammeled by any rule of syntax or parliamentary procedure.

By GEORGE L. SEESE, *Editor The Independent Republican Goshen, N. Y.*

ANY subject within the extensible limits of public interest or good taste is open for discussion at Goshen Village Board meetings. When they gather, Board members know there is a certain amount of public business to transact, but when the Mayor looks around to size up the gallery, and asks, "Any new business?" they don't know what will come next.

Sometimes what follows is mild and pleasant, as when the lady managers of the library reported that Roland Harriman, eminent patron of harness racing, had suggested the founding of a Hall of Fame to celebrate Goshen as "The Cradle of the Trotter." Sometimes it is amusing, as when a lady asked the Board to reprove another lady, next door, whose dog had bad garden manners, or when a group of television-set owners asked to have an interfering "ham" radio operator declared a public nuisance. But there are occasions on which shirt-sleeved indignation boots fancy-pants decorum out the window.

"Spirited Exchanges"

"That's a hell of a way to treat a hero!" roared Phil Pines, an exasperated Erie track supervisor, when the Board recently expressed a doubt of its power to piece out or supplement the slender pension of a disabled cop. It sounded as if Pines were addressing negligent section hands. The policeman, John Golemboski, had suffered a cerebral stroke some time after he had fought, hand to hand, with a robber cornered in a village hotel, and was retired on $33 a month.

"Peanuts!" shouted Pines in disgust. "It won't pay the rent of a roof over his head!"

"Damn" is another expletive perhaps not in frequent, but still not uncommon use. Board members generally manage to maintain their dignity, and especially when women are present, some restraint is practiced by vehement advocates of this or that. Yet four-letter words do slip out in the course of what the *Independent-Republican* weekly calls "spirited exchanges"—and the women never seem to mind.

There was a woman in the audience during the Board's January meeting, when an ordinance was discussed to prohibit car parking in the path of snowplows clearing streets after winter storms, and she heard a lot of four-letter words. *The Independent Republican* reported the session as the most tempestuous of the year. The ordinance was enacted, and immediately dissidents who wanted the village kept "as comfortable as an old pair of bedroom slippers" announced organization of a Taxpayer League to make the village election this month something of a trial for trustees who want another term.

Orange is one of the original New York counties, and Goshen one of the original (though not the first) Orange settlements. The village was built around a church, the Presbyterian, which three years ago observed its 225th anniversary. Many of its structures, including dwellings, were built a century or more ago. The building in which the Board meets is Town Hall, which originated as the Farmers' Academy, embodying a smaller school where Noah Webster taught before the Revolution, and where he is said to have prepared the first drafts of the Blue-Back Speller.

Besides Mayor Luft, a bank president, the Board comprises four trustees: Charles Fitzpatrick, a real-state broker and insurance agent who once was an iron molder; Dr. Roy Lippincott, a physician often summoned on sick call in the midst of meetings; Robert Walsh, a robust boss truckman high in the lay councils of the Presbyterians, and Frank McBride, one of two brothers who first established milk-truck transportation on the highways of the state.

Popular Participation Invited

Credit for having given Goshen Village Board proceedings the air of an old-time town meeting probably belongs chiefly to Mayor Luft. Incidentally, he conducts the financial institution serving Tuxedo Park, the near-by millionaire mountain retreat developed by Pierre Lorillard, the tobacco mogul of the 1880's.

Until a few years ago, the Goshen trustees operated in the privacy cherished by the average small-town government in the United States. Seldom did anyone but officials show up for Board meetings. But Mayor Luft, saying public business was not a private affair, invited popular participation. Goshen responded with the bright-eyed alacrity of an old lady bidden to a tea at which she could hear the gossip of the town. The Board of Trade detailed members regularly to attend, and every citizen feels free to come in and get a weight off his chest.

Somebody appears with a complaint that the buses running to and from the million-dollar Central School go through the village at dangerous speed. "We don't!" reply a deputation of bus drivers. "We can't; every bus has a governor limiting speed to thirty-five miles an hour."

"Too fast," says the Board. "Slow down to twenty in town." And the Board of Education issues the necessary orders.

Sewer and Water-Line Problems Aired

Bruce Schoonmaker has built half a dozen dwellings on a new street extension to relieve the housing shortage, and needs official cooperation. "Where the hell is that sewer pipe the Board is supposed to have ordered

more than a year ago? Anybody think he can sell houses to houseless families without sewer and water connections?"

"O.K. Just keep your shirt on," says the Board in soothing effect. "Get the street graded. No ungraded street can be accepted, and we can't lay sewer lines on a street we haven't accepted."

Mrs. George Gregg, widow of a newspaper editor, has terraced a village hilltop, and marked it off in spacious building lots. Her engineer, Van Duzer Wallace, makes a formal offer to cede a street if the Board will extend sewer and water lines there also.

This poses a question. Joe Fix-It comes in steaming. Joe (last name Dunlevy) is a young Navy veteran of the last war who advertises — sometimes in rhyme—that he can make anything go that was made to go. In the development of the sewer system, Dunlevy's neighborhood was somehow overlooked. What the heck! His tax bills show assessments for sewers he and his neighbors have yet to get. Now somebody wants the village to put in new lines absolutely free. It can't do that!

As Clerk John Connelly, the chuckling MC of nearly every Legion or KC show, reaches the end of the routine, the Mayor's query, "Any new business?" is the signal for the gallery to become vocal. Frequently Board members start something themselves. Not long ago members severely criticized the police force, of which, counting the Chief, there are five members in a village of 3,000 inhabitants. "Damned rotten," was a term used in momentary abandonment of official dignity. "Not as good as two men in the neighboring villages of Walden or Warwick. Especially on traffic regulations!"

To the next meeting came Chief Robert Bruce, a ponderous figure of a man, now past retirement age, but under special dispensation still in uniform after more than thirty years of service. "Look," he said, "we caught thirty-seven speeders last month. If you want us to do better than that, give us a new prowl car." He added that the car in use (a gift, by the way, ten or twelve years ago) was about to fall apart, a menace to the life of any patrolman trying to chase speeders over thoroughfares that in horse-and-buggy days were the scene of thrilling sleigh races whenever there was snow on the ground.

Thereupon, the Board asked Village Treasurer Harold Parker to report on whether, under current budget limitations, he could provide money for a new car. He couldn't.

Not all of the Board sessions are exciting. Patients in the doctor's office next door may await their turn for consultation without hearing the slightest commotion in Town Hall. Sometimes county-seat reporters despair of getting a headline out of the proceedings. On such an occasion the Mayor and his colleagues are capable of creating a diversion. They gave a recent demonstration. Mrs. Frank Beane, a young matron interested in civic affairs, joined the gallery around the council table, with nothing special in mind except a desire to see the Board in action.

Sparks Fly Over Railroad Service

"Sorry," said the Mayor. "We don't seem to have anything particularly important tonight." But a moment later he remarked, "Before we adjourn I think the Board should consider something that has been in the air for a year. Erie commuter service. . . ."

The session was interesting from there on. Mrs. Beane heard a debate liberally larded with words of body and spirit. Everybody talked, and at times all at once.

The Erie, though not without its apologists and defenders, seemed to be suspected of trying to bargain over something the village ought to have. Trains taken off during the war might, —might—be restored if communities all along the line into New York City were kinder in the matter of taxes. There was a snort from one end of the table. As men personally interested in highway transportation, neither McBride nor Walsh seemed to think much of railroad-tax reduction.

"The Erie's got smooth tax agents," observed a fellow trustee. "But," somebody in the gallery interjected, "trucks and buses didn't have to build their own roads, and then pay taxes on the values thus created."

"You can't expect the Erie to give something for nothing." This from Trustee Fitzpatrick.

"Right," came from the gallery again. "And if you keep on calling Erie trains filthy, and the service terrible, as somebody did in the last conference with Erie officials, you'll damn well be without more trains until Kingdom Come."

"Goshen," muttered an elderly galleryite as he rose to go, "don't want more population."

"There'll be more buses and trucks anyway when there's more business for them," comforted a companion.

"Nope; I remember years ago when a delegation of prominent citizens went to Albany to protest granting a suburban trolley line franchise. Said the trolley would bring in a lot of undesirables, and spoil the beauty and charm of the village."

"Move to adjourn," said Fitzpatrick.

"Good night, gentlemen," said young Mrs. Beane. "I've had a most interesting evening."

Everybody sauntered out smiling.

"No hard feelings," said the Mayor complacently.

He was right then. But after the winter parking ordinance was passed, there remained some exacerbation of spirit, though Carlisle Neithold, a hotel keeper vigorously opposed to the measure, said as he left the hall, "after all, it was democracy in action."

Assessing Officers Discard Pre-War Price Level As Market Value Standard

THE weight that should be given to current sales prices, building-construction costs, and rental income in assessing real estate was discussed by the Advisory Council of the National Association of Assessing Officers at a meeting in Chicago in January. After reviewing the evidences of economic conditions and trends, the Council issued the following statement as to its conclusions:

1. All available evidence indicates that the entire price and value structure has been raised above the pre-war level.

2. The use of the price level of 1939, 1940, or 1941, or any average of two or three of such years by assessing officers as a standard for determining assessed values in 1949, is completely unrealistic and the use of such a level should be abandoned.

3. In interpreting the constitutional or statutory standard of value for property-tax purposes in the various states and provinces, present sales prices, costs, and rental income are far better evidence of value than pre-war prices, costs, and rental income, provided the evidence based on sales is properly discounted to rule out any "premiums for immediate occupancy," "bonuses for shelter," or any other similar charges.

4. The policy now being followed in many state and local assessment jurisdictions of tenaciously clinging to the pre-war price level as the best evidence of present market value is a violation of the spirit, if not the letter, of the law, and for this reason should be abandoned.

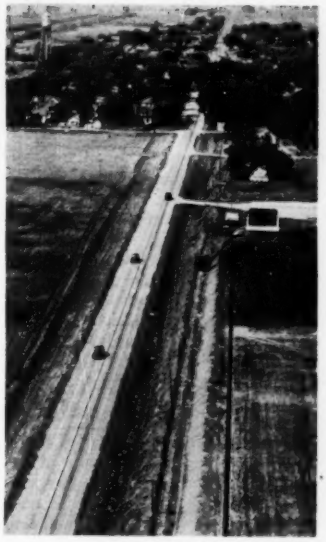
5. In furtherance of these principles, the Advisory Council reiterates that the local unit of assessment is essential for the preservation of local government. It further advocates the establishment and the maintenance of state tax authority to assist and equalize local assessing units. The coordination of the assessing function is essential to maintain equalization and to assist local assessing officers to carry out their duties with courage, courtesy, and intelligence, and to engender greater respect for the law under which they work.

Elevated tank and water-softening facilities go up in the new program.

MOORHEAD, MINN.,

Compares the Cost

By J. E. YOUNG
Superintendent
Public Service Department
Moorhead, Minn.



Five miles of pipe were required to connect the new fields with the city.

Water-supply needs based on comparison of well field and river supply

MOORHEAD, Minn., a city of approximately 13,000, faced an important water-supply decision in 1946. Since 1910 it has used deep-well water. The static level of the groundwater was originally about 6 feet below the surface. The wells produced about 100,000 gallons of water a day. However, the rate of pumping increased until, in 1944, the aquifer was yielding 700,000 gallons a day. By this time, two of the city's six wells were dry and the static level of the other four had dropped to 180 feet below ground surface.

In 1946, pumping from wells had increased to 1,200,000 gallons daily, running on an average of 14 hours per day. Such conditions indicated that it would not be very long until the wells would be unable to produce enough water to fill Moorhead's needs.

Geological Study

Consequently, the city called for advice from members of the United States Geological Survey, who had been employed by the City of Moorhead, Clay County, and the State of Minnesota to look for new underground water supplies. These men described an aquifer under investigation about five miles east of Moorhead, which, they thought, could provide the city with an adequate supply of underground water. They believed the water-bearing strata in the aquifer was at least a mile wide and 18 miles long, and that it contained a gravel core about 70 feet deep and a quarter of a mile wide at its center.

With these findings, the Moorhead Public Service Commission employed the McCarthy Well Company of Saint Paul to drill test wells. The company constructed two wells, one 8 inches and the other 12 inches in diameter. Both penetrated the aquifer's gravel core, but neither apparently hit its deepest and most permeable section. Pumping tests and other data indicated there was a natural flow of 500,000 gallons of water a day through the aquifer and a well pumping 600,000 gpd per foot of drawdown could be placed in its most permeable section. The geologists also said about 2,000,000 gallons of water a day

Superintendent J. E. Young examines flow from the test well and likes results.

could be pumped indefinitely from the aquifer without artificial recharge.

Good Quality of Water

Tests proved the water pumped was of good quality with an average hardness of 19 grains a gallon, an iron content of about .8 parts per million, and an extremely low bacterial count. Both the hardness of the water and the iron content were much larger than that obtained from the groundwater source Moorhead was using.

The geologists also had discussed the feasibility of re-charging the aquifer. It seemed probable that re-charging could be made practical economically by using a river that ran parallel to the aquifer and by pumping into large gravel pits near the river.

Costs Compared

The Moorhead Public Service Department made a careful study of the cost of developing this new water supply and building a plant to soften and remove the iron from the water. These costs were compared with the expense of taking water from the Red River of the North, which flows along Moorhead's border, and providing similar softening treatment. The study indicated that the capital cost of developing the new underground supply would be more than the capital cost of developing the river supply. However, when both capital charges and operating costs were considered, the studies showed that the new underground supply probably would cost less than the river supply.

The Public Service Commission decided the quality of the water obtained from the aquifer would be very much superior to that obtained from the river. It also thought the underground supply could be developed with more speed than the river supply, for the reason that it could be used safely without treatment if it was pumped directly into Moorhead's water mains.

Bonds Asked

The Commission, believing the situation very critical, asked the City Council to request the voters to approve a $950,000 bond issue. Approximately $600,000 of this money was to be used for building a 500,000-gallon storage tank to supplement the city's 300,000-gallon tank; building a water-treatment plant to reduce the water's hardness to five grains and remove the iron; drilling two new wells, and installing five miles of 16-inch pipe. The other $350,000 was set aside for enlarging Moorhead's electric generating plant, whose increased production also was taxing its facilities.

The City Council submitted the bond issue to the voters and they approved by a margin of eight to one on May 27, 1947. Contracts were let a few months later: the contract for drilling two 20-inch gravel-paced wells to the McCarthy Well Company, the construction of a 500,000-gallon storage tank to the Chicago Bridge and Iron Company, the pipe and fittings to the United States Pipe and Foundry Company, and the installation of five miles of 16-inch pipe to the J. J. Nagel Company of Perham, Minn.

Wells Completed

The wells were completed in January 1948. They were drilled to an approximate depth of 116 feet. At this depth, the drillers found the screens could be placed in about 70 feet of coarse gravel overlaid by sand and sandy clay. With water's static level rising to within 17 feet of ground surface, pumping tests made on the new wells indicated that they were located close to the aquifer's most permeable section. Each well was equipped with a Peerless Pump, obtained from the Crane Company, which produced 1,500 gallons of water a minute, with an average drawdown of 12 feet.

The five-mile pipeline was completed on October 27, 1948, after about 110 working days. The pipeline had been thoroughly sterilized with chlorine as it was laid, and water was turned immediately into Moorhead's mains. Tests for bacteria showed the water was exceptionally free from all types of bacteria.

The water-softening and treatment plant will be built this year. Equipment for this plant was obtained from the Permutit Company and the Builders Iron Foundry, and most of it was delivered in 1948.

The Commission's belief that the water supply was critically low in 1946 was proven correct last summer when three of the city's four wells went dry. It was then necessary to obtain about half of Moorhead's water supply through emergency pipelines from Fargo, across the river, and the Fairmont Foods Company of Moorhead.

All reports, estimates, and design of the work described in this article were made by the writer.

The work was done under the supervision of Moorhead's Public Service Commission, whose members were J. H. Deems, M. W. Cousineau, I. S. Stenerson, G. M. Comstock, Jay H. Murray, and Robert Peterson.

American Institute of Planners Discusses Policy Statement

HIGHLIGHTED by a stimulating and thoughtful address by Senator Ralph E. Flanders of Vermont, the annual meeting of the American Institute of Planners at Atlantic City, March 4-6, recorded substantial agreement on a number of important "fronts" in the planning field.

A policy statement on "Urban Expansion and New Towns," prepared by the Committee on Land Policy under the chairmanship of Frederick P. Clark, director of planning, New York Regional Plan Association, received endorsement in principle during a lively discussion and is being redrafted for membership review and for adoption by the Board of Governors. It is expected that the statement will then be published for the information of the general public.

Professor Frederick J. Adams, of M.I.T., who was re-elected president of the Institute for another year, declared that the Institute has avoided responsibility for too long in adopting policy statements and principles, and in taking more prompt and effective action on planning affairs. He urged that it re-assume leadership in the formulation of American planning legislation and programs. The Institute has steadily grown, he said, pointing to the activity of regional chapters in Chicago, New York, Philadelphia, New England, Washington, D. C., and California.

A spirited controversy occurred during the meeting on national urban redevelopment legislation. The Institute members present voted to endorse the new national bi-partisan general housing bill, S. 1070, including its section on urban redevelopment. Paul Oppermann, the new Director of Planning for the City of San Francisco, objected to the idea of having the Housing and Home Finance Agency administer this urban-redevelopment section. "Urban redevelopment involves much more than housing," he said, pointing to the needs for the rebuilding of industrial and commercial areas in most U. S. cities, and to the need for integration of the sum total of public and private improvement programs to achieve desirable neighborhood patterns. In endorsing S. 1070, some Institute members made it clear that they were unwilling to do anything which might endanger or delay the passage of general housing legislation by Congress, though they felt that the urban-redevelopment section as written differed from the Institute's own previously adopted statement on urban-redevelopment principles.

The possibility for a unified conference among planning, architectural, and housing organizations to be held in Washington, D. C., either in the spring or fall of 1950—the capital city's sesquicentennial—was an idea which received ready acceptance. The tentative plan being studied is that each of the participating organizations will hold separate meetings, but that they will join together in some joint conferences so as to focus attention on the planning problems of the nation's capital, as well as on local, state, and national planning progress generally.

In addition to President Adams, the new officers of the Institute include Paul Oppermann, vice-president, and Harold M. Lewis, secretary-treasurer. New members of the Board of Governors are Louis B. Wetmore, John M. Picton, and Harry E. Bergh.

Brooklyn Covers Car Tracks

Makes way for trackless-trolley operation in place of rail streetcar service

By CHARLES A. RIEDEL
Chief Engineer, Bureau of Highways and Sewers
Borough of Brooklyn, N. Y.

TYPICAL of the maintenance work that has been performed in recent years under the jurisdiction of John Cashmore, President of the Borough of Brooklyn, is the transition from streets packed with granite and used by trolleys, to a smooth pavement for use by buses and trackless trolleys.

Representative of this is the work done in paving over the tracks where necessary, to provide a regular smooth crown throughout on one of our thoroughfares, namely, Bergen Street from Smith Street to Utica Avenue, a distance of approximately three miles.

The procedure for this paving project was to remove thoroughly all the dust and dirt from the street surface and cover the granite block with a close-mix binder where required for grade. If the street was at grade, the block was thoroughly coated with an asphaltic cement. The final operation consisted of placing a sheet-asphalt wearing surface from 1½ to 2 inches in thickness, and then rolling this to a finished grade with an 8-ton roller. The work of this project was completed in record time.

Excessive wear and tear on the newly installed trackless trolleys was prevented by this paving work.

Normally, the work of repaving streets is done by contract, which requires authorization by the Board of Estimate and the advertising of bids. In order to avoid the time lag occasioned by this procedure, the work was undertaken by our maintenance division at a considerable saving in time.

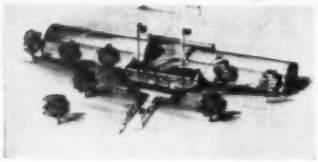
A contract would provide for the rails to be removed and disposed of by the contractor and a concrete base of at least 6 inches to be laid. The minimum-strength requirement of this concrete base is 18,000 pounds per square inch. Over this base would be placed a 1½-inch course of binder and a 1½-inch layer of asphalt, rolled and compacted by a 15-ton roller.

This procedure will be followed as soon as the legal steps and engineering plans have been completed by the Borough President's forces.

Brooklyn's Bergen St. before repaving.

Here is the same street after repaving.

Maintenance forces took over the task of resurfacing the street. Asphalt mix came from the city's plant. City-owned Buffalo-Springfield roller compacts the mix.



A Community Recreation Building For $40,000

By KARL J. FAIRBANKS

THE current swift rise in construction, maintenance, and operating costs for school gymnasiums and sports and civic centers is a major challenge to those who believe that smaller American cities have as urgent a need for such facilities as do the richer metropolitan areas.

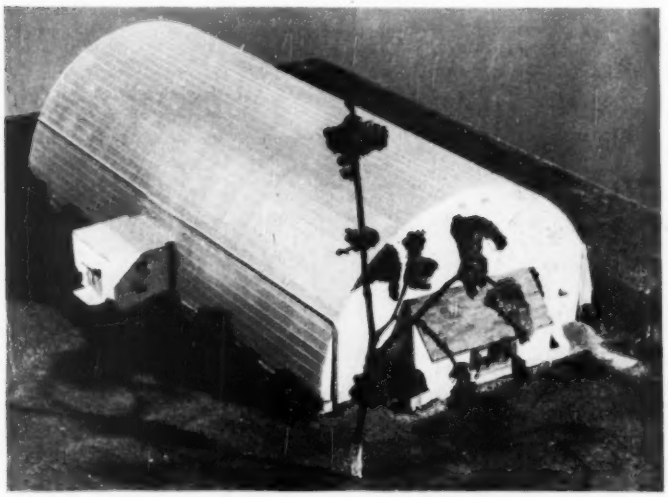
The recreational, athletic, educational, and civic contributions that such structures are capable of making to a community are looked upon more and more as luxuries that few cities can afford. Tied by habit to traditional forms and materials, too many responsible persons continue to think a combined sports and community center, an indoor tennis court, or a multi-purpose sports building as being in the $100,000-and-up range with proportionately high maintenance and operating costs.

The surprising fact to many will be that a suitable structure with high clearance for sports, 7,200 square feet of floor space, markedly superior lighting and a generator and heat-exchanger unit for electricity and heating can be constructed for $40,000 and operated for 50 cents an hour of use. Moreover, just such a building has undergone eight years of test operation without requiring any repairs.

The development of this interesting structure began in 1939 when Sherman Fairchild, a designer-manufacturer of aircraft, decided to design and construct an indoor tennis court of regulation size, requiring a building 60 by 120 feet with maximum clearance of 30 to 32 feet. The first step he took was to study some 50 tennis and recreation buildings in the New York area. This careful examination of construction, maintenance and operating cost records convinced him that conventional designs were intolerably expensive.

Months more of investigation produced an explanation of the high costs that was significant and useful in overcoming them. Quite simply, the major source of the costs was a common, extensive use of glass skylights and windows for lighting and ventilation.

The use of large areas of glass necessitated a costly, heavy girder and masonry construction, required a wastefully steep pitched roof for condensation drainage, made efficient and satisfactory illumination impossible, and boosted heating and maintenance costs. Mr. Fairchild found that the glass introduced glare and, often, oppressive heat by day. At twilight, the combination of daylight and artificial lighting reduced visibility, just as it does on the highway. At night, the dead black of the glass area absorbed artificial lighting, forcing the use of direct spotlighting of the play area. Glass increased the difficulty of heating the buildings in cold weather. In summer, glass converted the interior into an oven.



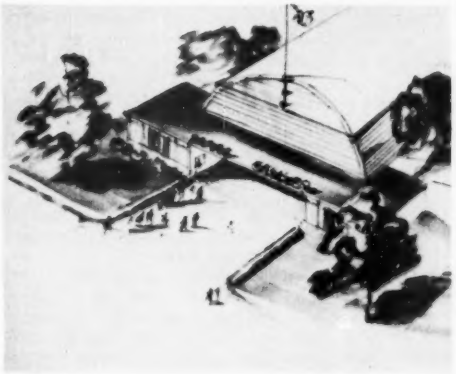
Model of the windowless community recreation building. The gasoline-powered electricity generator and heat exchanger are housed in the small room at left.

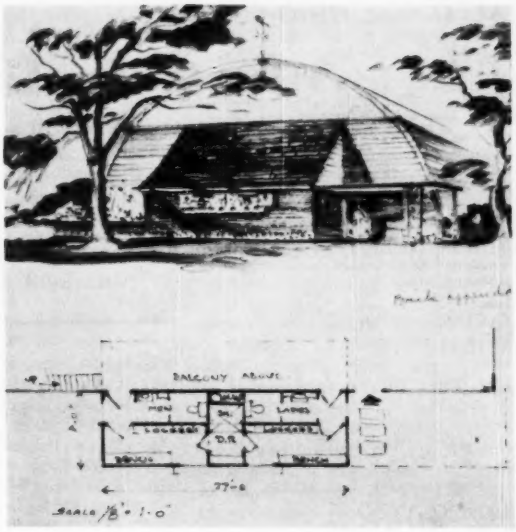
Structure Is Windowless

This conclusion was mainly negative until the aircraft authority decided to apply the monocoque principle, long used in fuselages, to the design of a windowless structure of semi-circular cross-section. Self-stressing permitted the utilization of low-cost laminated wood arches while maintaining adequate strength for wind loads of 85 miles per hour and gust loads above 100 miles per hour.

Form costs for the reinforced concrete foundations were eliminated by use of filled cement blocks. Embossed aluminum over two layers of 30-pound asphalt felt created a reflection-insulated maintenance-free roofing, with aluminum board over asphalt felt on the ends. The end frames were stiffened with special jack-braces. One and three-quarter-inch kiln-dried sheathing was key-locked together with insert splines. This extreme thickness was chosen to obtain good thermal insulation, as well as to serve structurally as a stiff shell. The two-hinged arches were of structural grade Douglas fir, primed with

The recreation building's basic design is adaptable to many different treatments, as shown by these illustrations and the one at the top of the adjoining page, in which two of the units are joined together.





95% moisture-proof aluminum pigmented asphalt. To deaden noise and to create an artificial horizon for player orientation in sports, an acoustic blanket was dyed deep green and applied to the lower portion of interior walls.

The windowless design of the tennis and sports building made perfect lighting a necessity and a problem. A number of conventional luminaires were tested and found wanting, many of them because they illuminated the top of, say, a tennis ball, but failed to illuminate the side and underside presented to the player. Continued experimentation, with aid from glass manufacturers, finally yielded a luminaire of high efficiency and very great uniformity of lighting.

The placement of the luminaire was found to be critical. Low brightness made necessary a high-density bowl. Thus, better than 70% of the light was directed upward, where, under adverse conditions, it would be wasted. However, precise placement of the luminaires high above the playing level and close to the building's curving sidewalls converted the sidewalls into efficient reflector-diffusers. Special high reflective paint is used to return the indirect light.

Lighting and Heating Economies

The economy of this lighting system suggested another economy: namely, the use of a 35-kilowatt gasoline-powered generator to provide electricity and to eliminate the rather substantial "demand charges" required by public-utility companies in most areas. Such a generator also meant a saving in operating costs for a building used only a part of each day, while a diesel generator would reduce costs still more for a building which was in extensive use.

The heat-exchanger which Mr. Fairchild applied to the generator made use of the 1200° F. temperature of the exhaust gases to warm the air used to heat the building to 60° F. in 50 minutes in freezing weather. The exchange is accomplished through liquids and no contamination is possible. This system, which is sealed and freeze-proof, ended worries about freezing pipes and eliminated the considerable cost of radiators, piping, and valves. A blower spreads the warm air evenly at low velocity.

Tests showed that the per-hour cost for lighting and heating the building by gasoline generator were 80 cents. A diesel generator would reduce this to 50 cents per hour. These costs are in amazing contrast to the operating costs of $5 to $12 an hour for the 50 conventional buildings which Mr. Fairchild studied earlier!

A number of features have been added to the original building and the recent redesign. Among these are a balcony, placed high above one end, which offers a splendid spectator vantage point for all sports activities, and a low-cost entry building for locker space and other facilities.

The building's durability, combined with low original and operating cost, has interested sports and recreation authorities in studying its various utilizations. They have found that the building, equipped with a solid flooring, will accommodate basketball, four badminton courts or eighteen bowling alleys, or, in use as a multi-purpose community center, serve as a gymnasium with spectator space for 700. Multiple units can, of course, be joined, often with an entry building between units serving as central facilities space.

Further information about this scientifically designed building and its adaptability to various community recreation purposes can be obtained from the author, a consulting engineer with the Dynar Corporation, Room 4628, 30 Rockefeller Plaza, New York 20, N. Y.

400 Cities Invited to Enter Anti-Noise Fight

MAYORS of 400 cities in the United States have been invited to participate in the 10th annual nationwide competition for "achievement awards" presented by the National Noise Abatement Council to municipalities conducting year-round programs designed to educate the public to the need of reducing excessive, unnecessary noise in home, street, office, and factory.

This spring, National Noise Abatement Week will be observed May 1-7, when local committees and councils will emphasize the need for checking unnecessary, harmful noise through special programs.

Dudley W. Day, of Libertyville, Ill., president of the Council, said that so far acceptances have been received from such cities as Memphis, Tenn.; Salt Lake City, Utah; Evansville, Ind.; Rochester, N. Y.; Beverly Hills, Calif.; Jacksonville, Fla.; and others.

The awards are given, Mr. Day said, to cities where local groups actively organize to combat nuisance noise. In some cities the movement is sponsored by the city and in others by chambers of commerce, service organizations and civic groups, Mr. Day added. Headquarters of the Council is at 9 Rockefeller Plaza, New York, N. Y.

ALLIANCE, OHIO

Adopts Zeolite Softening

TO TREAT RIVER SUPPLY

By DONALD HEFFELFINGER
Engineer Superintendent
Alliance, Ohio

Gravity sand filters converted to zeolite use: natural brine well regenerates the zeolite

THE City of Alliance, Ohio, with an estimated population of 31,000, derives its water supply from the Mahoning River with a watershed of 90 square miles. It is supplemented during dry periods with a 300,000,000-gallon reservoir at Westville and three wells at the plant site. The present annual average pumpage is 6,000,000 gallons daily, with nearly half of that amount being used by the large industrial plants of the city.

Prior to the new construction, the plant had developed several shortcomings. No major improvements had been made for 20 years. With the outbreak of the second World War, the city retained Chester Engineers, Pittsburgh, Pa., consulting engineers, to make a comprehensive survey of our needs.

Mains and Pumping Stations

In their preliminary report the engineers recommended improvements totaling $1,000,000. Following these recommendations, early in 1945, the city awarded contracts of $133,000 for over four miles of 10- to 14-inch water mains. These strengthened the distribution system and afforded increased fire protection. The city also awarded a contract for a new 3-mgd welded-steel distribution storage reservoir at a cost of $110,000. A contract was also awarded for a new high-service booster pumping station to cost $14,000. Work on these projects was completed early in 1947.

Softening Added to Plant

In 1945 plans and specifications were prepared for remodeling the present filtration plant to include water softening. The water from the Mahoning River reaches a maximum hardness of over 300 ppm in the summer and fall when stream flow is low, and has an average hardness of 200 ppm for the year. It was also expected that the softening process, through better coagulation, would improve the quality of the finished water. A great amount of organic pollution is present in the raw-water supply resulting from pollution with sewage and industrial wastes.

In January 1946 a contract was awarded for construction of the softening plant at a cost of $193,000. This included a new chemical building with facilities for handling and storing two carloads of chemicals on the second floor. On the first floor were installed two Omega coagulant feeders designed for either alum or ferric sulphate, and two lime feeders with a total capacity of 1,300 pounds of hydrated lime per hour. One is an Omega gravimetric-type feeder and the other a Gaunt feeder which was removed from the old feeder room in the filtration building. The main floor also contains two small American Water Softening Company lime feeders, a small baffled mixing chamber, a settling basin, and a gravity sand filter for the purpose of removing iron from the brine produced by the brine well which is described later.

A 7-mgd motor-driven, low-service, raw-water pump was installed in the basement along with two sludge-recirculating pumps and brine pump. All pumps are Fairbanks-Morse. Part of the basement houses the brine storage well.

Mixing and Settling Basins Redesigned

The existing baffled mixing chambers and settling basins of the plant were redesigned. Wood baffles were removed from the mixing chamber, and both rapid and slow mechanical mixing equipment were installed. Entrance and outlet flumes of both basins were redesigned for more even flow, and American Well Works mechanical sludge-removal equipment was installed in the primary basin.

This new 3-million-gallon storage reservoir is a marked improvement for the Alliance, Ohio, distribution system.

Sludge conveyor and removal equipment was deleted from the secondary basin because rising costs had greatly increased the bid price over the estimates, and insufficient money was in the fund. Mixing baffles were installed in the flume ahead of the secondary basin instead of providing mechanical flocculation, for the same reason. A new effluent pipeline was installed from the secondary basin to the filters.

Sand Filters Converted to Zeolite

In the existing filtration building, since more than ample sand filter capacity was available, four of the twelve 1-mgd sand units were converted to zeolite softening. This was done by replacing the cast-iron lateral underdrain system with Leopold filter bottoms; by replacing the old sand and gravel with Zeco greensand zeolite; and by installing brine-dosage lines above the filter. A Sparling batch meter automatically measures and controls each dosage. Four Palmer surface washers were installed in the remaining eight sand filters to supplement washing. They are controlled by means of Clayton valves with operating controls mounted on the filter tables.

Brine Well for Regeneration

A study of the geology of the area indicated that a salt brine containing about 0.5 pounds of salt per gallon of water was obtainable at a depth of about 650 feet, and it was decided to drill a well to obtain the salt necessary for regeneration of the zeolite filters. Upon drilling, a brine was obtained which, although weaker than had been anticipated, contained approximately 3.5% sodium chloride. This brine is very high in iron, so provision was made for aeration, lime treatment, settling, and filtration prior to use on the zeolite filters.

The well was equipped with an Oil-Well pump with sucker rods and working barrel. A Fairbanks-Morse centrifu-

gal brine pump is used for pumping the brine from the storage well in the chemical building to the zeolite filters.

The plant was designed to provide split treatment. Approximately 75% of the raw water enters the first basin, where it is overtreated with lime to approximately 50 ppm hydroxide alkalinity to remove most of the magnesium, and given four hours' settling. Then the effluent from this basin is mixed with the remaining 25% of the raw water, reducing the caustic alkalinity to zero, and given an additional four hours' settling.

Coagulants may be fed to either basin for additional aid in settling and clarification, especially during periods of high turbidities after rains. Provision was made to return sludge from either basin to the influent line of either basin. It was expected that the sludge from the secondary basin would be practically all calcium carbonate, since the magnesium would have been precipitated only in the primary basin, and that the return of this carbonate sludge to the influent of the secondary basin with the raw water would produce a stabilized water without recarbonation.

This method would also provide an economical use of chemicals. Calgon feeding equipment was installed to feed these stabilizing metaphosphates into the effluent of the secondary basin and prevent the formation of lime deposits in the effluent line and sand filters.

From Filters to Zeolite Beds

After settling and precipitating the magnesium and carbonate hardness with lime, the water is filtered through eight 1-mgd rapid sand filters and collected in a clear well beneath the filters. From this clear well approximately 40% of the water is recirculated by means of a 4-mgd Fairbanks-Morse pump to the four zeolite units. The flow of water to these units is controlled by means of a Clayton regulating valve which maintains a constant head on the zeolite filters. Sand-filtered and zeolite-softened water is then mixed to produce a water of the desired hardness which is collected in a million-gallon clear well located behind the plant.

Operating Difficulties

After one year of operation, the overall plant performance has been satisfactory, although operating difficulties have arisen. For example, we were unable to obtain a calcium-carbonate sludge from the secondary basin for recirculation. Consequently, it has been impossible to produce a stable effluent from this secondary basin, and we have experienced a considerable growth of the sand in the filters.

Several factors have caused this situation. One was the elimination of mixing- and sludge-removal equipment from the secondary basin because of a shortage of funds. This caused the short-circuiting of flow in this basin. However, the filters are continuing to give a good effluent and the effluent is stable in respect to calcium carbonate, thus assuring no coating of the zeolite filters.

To date Calgon has not been tried, owing to the inability to obtain it; also, the softening action of the sand filters would probably be lost if the secondary basin effluent were stabilized with Calgon.

Various Coagulants Used

Numerous tests were made using various coagulants to produce sludge for recirculation in an effort to furnish a stable water. While laboratory tests show that a stable water could be supplied with the addition of calcium carbonate sludge, since this was unobtainable, the next best results were obtained using Ferri-Floc as a coagulant and the recirculating of primary sludge to the secondary basin influent. We are now using this method.

Control of the split treatment has been satisfactory although sometimes difficult because of varying lime quality. Recirculation of primary sludge to the inlet of the mixing chamber helps to maintain a more constant alkalinity reading and also affords some savings in lime. The effluent from the primary basin has averaged 47 ppm caustic alkalinity. The influent to the secondary basin, after the addition of raw water, has averaged 3 ppm caustic alkalinity. Total alkalinity of the water was reduced from 97 ppm in the raw water to 43 ppm in the filtered water.

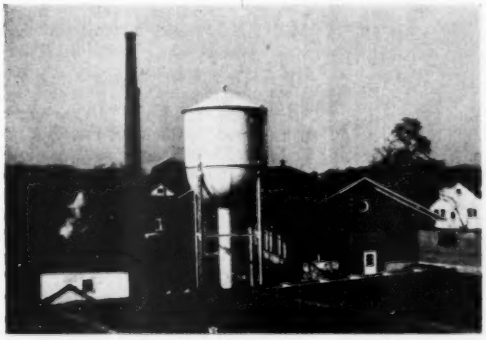
The zeolite filters have operated satisfactorily, considering the weakness of the salt brine used in regeneration. Exchange capacity of the zeolite under these conditions has been approximately 1,800 grains.

Although the brine is weaker than desired, the salt well has produced very well, averaging 50,000 gallons per day, or over 6 tons of salt on a dry basis. During most of the year this amount has been sufficient; however, when the river hardness is above 230 ppm, this brine has been augmented by purchased salt which is fed by means of a dry feeder into the brine from the well to increase the concentration.

Operating Summary

The Alliance softening plant is treating 6 mgd, and during the first year of operation has reduced the average hardness from 170 ppm in the finished water to 90 ppm. These results include periods of high stream flows when the water is naturally soft and softening is discontinued, and also other short periods of time when the plant was not in operation. The last five months of operation show a raw-water hardness averaging 180 ppm and finished water 84 ppm. This past year has produced more than average rainfall and as a result the raw water has been somewhat softer than usual.

Chemical costs for the year have averaged $9.67 per million gallons divided as follows: lime $6.28, chlorine $1.73, iron and aluminum coagulants $1.62, and purchased salt $.24.



A view of the filter building. Filters at this plant underwent a change from the rapid sand to zeolite operation.

The well in the foreground pumps salt brine from a depth of about 650 feet to regenerate the zeolite filters.

A Park Program Is a County's

A shaded section of the Saddle River as it winds through Fairlawn. With little effort, the stream can be cleared of fallen trees, bordering groves thinned of undergrowth, giving opportunity for development with recreational facilities.

A portion of the Phelps Manor golf course, which is being acquired by the Township of Teaneck for inclusion in properties along the Overpeck Creek that are being planned for park development. Most of the golf course is being developed for residential purposes.

Planning for a county park program is fraught with problems that differ from those encountered in plans for parks in urban sections. But while there are greater difficulties to overcome, there are also greater opportunities which, if explored, can enhance the value of a county park system to the extent that it may serve as an insurance policy against depreciated land values — and, consequently, against a decline in the county's purchasing power.

A COUNTY park program meets its first difficulty in the apathy of the taxpayers, who may regard the parks in their respective municipalities as sufficient to provide areas for recreation. This is understandable. There is much less apathy about municipal parks. When a town is developed with its proportionate factors of business, industry, and homes, but lacking parks, the need for open spaces is evident. The people demand a place for their children to play. It is a health matter as well as one of recreation, and space has to be provided, despite the fact that the necessary land must be acquired in areas where values are relatively high.

From a homeowner's viewpoint the chief function of a park is to provide space for recreation. In congested areas this is generally true. But there are other factors affecting the community's economic stability of which the average taxpayer is unaware. These have to be brought home to him very forcibly if a county park program is to be successful. Even in suburban areas, many homeowners seem content with their tree-lined streets, their gardens, and a feeling of openness their urban cousins cannot enjoy. Also, they feel they do not have to travel far to reach open country. But what they fail to realize is that the broad open spaces just beyond the limits of the town are being rapidly developed by speculative builders, and with each new spring the open spaces shrink in size.

When the Bergen County Park Commission was authorized and appointed, its first survey consisted of an inventory of existing recreational facilities and present public-park acreage among the county's 70 municipalities. It discovered that in a county consisting of 150,961 acres, only 803.4 acres were dedicated

Insurance Policy

By A. THORNTON BISHOP
Vice-president
Bergen County, N. J., Park Commission

as parks to serve an aggregate population of approximately 450,000. The largest portion of this acreage is concentrated in a few towns. Twenty-six municipalities have no parks.

Estimating Public Park Needs

In estimating the total need for public parks there are two bases that are often used. One is related to population, the other to land and water area. Widely accepted among park and recreation authorities is the standard requirement of one acre of municipal parks plus one acre of county, state, or regional parks for each 100 persons in the present or estimated future population.

Another standard used by planners suggests that 10% (usually 8 to 12%) of the area of a municipality should be devoted to parks. It is not possible in all cases to reconcile these two bases for estimating park requirements, but both can be applied in many situations with a reasonable degree of fairness. For example, 9% of the Bergen County area is 13,600 acres. Divided between municipal and county or state park acreage, this would allow for 6,800 acres of municipal park and public school playgrounds, and for another 6,800 acres of county, state, or regional parks.

From the standpoint of population it appears likely that by 1970 Bergen County will have a population of from 650,000 to 703,000 persons. Taking the figure of 680,000 as an arbitrary estimate lying between the two extremes, the county should have some 6,800 acres of municipal parks and another 6,800 acres of county, state, or regional parks on the basis of one acre for each 100 persons in its future population. These goals coincide with the needs as measured by the previous method. At the present time the municipalities have accomplished approximately one-eighth of their objective; the county has to start at scratch.

Determining Priorities

The matter of priority in the acquisition and development of specific park areas involves many decisions of public policy. In Bergen County the pressure of population is greatest in the southern and eastern portions. This factor, coupled with the necessity for securing the most desirable properties in these sections before they succumbed to other uses, made it expedient to focus an early attention here. It was also thought advisable to bring the earliest relief possible to the most densely populated areas. At the same time, it became apparent that the county should plan its parks to supplement, not duplicate, the function of municipal parks. Rather, it should encourage municipalities within the county to establish and improve local recreation programs, and offer to residents types of recreation that are either too expensive or impractical for most municipalities to offer individually.

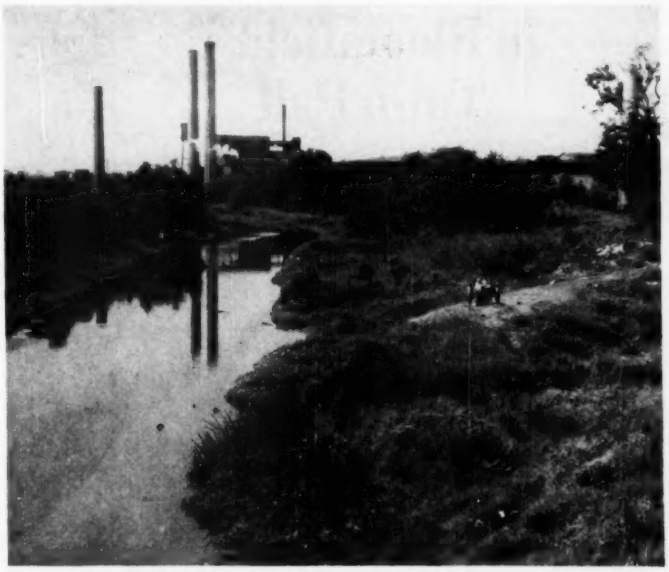
Preservation of the county's natural resources, conservation of its game, reforestation of its timberland—all appear as important functions that fall within the scope of the County Park Commission where no provision has been made elsewhere. The importance of the county's waterways in a county park system was quickly visualized. County ownership of the land bordering the various streams is considered good public policy, as in this way these valuable adjuncts to a public recreation program may be protected against misuse of the riparian rights by private ownership.

In seeking land for park development, the Bergen County Park Commission is guided by the principle that consideration should be given to the ratable value of the tracts suggested, and that these assets should be converted to public use only where the loss in taxes will be abundantly compensated for by the increased valuations in the adjacent areas which may be expected to follow the appropriation of the land for park purposes. Land which is unsuitable for housing development frequently presents opportunities for park development and recreation usage. In this way, municipalities have a way to discharge from their tax rolls lands that yield little income and that invite elements engendering blight, gaining immeasurably by the transfer of these lands to the county for reclamation as parks that will enhance the realty values throughout the entire area.

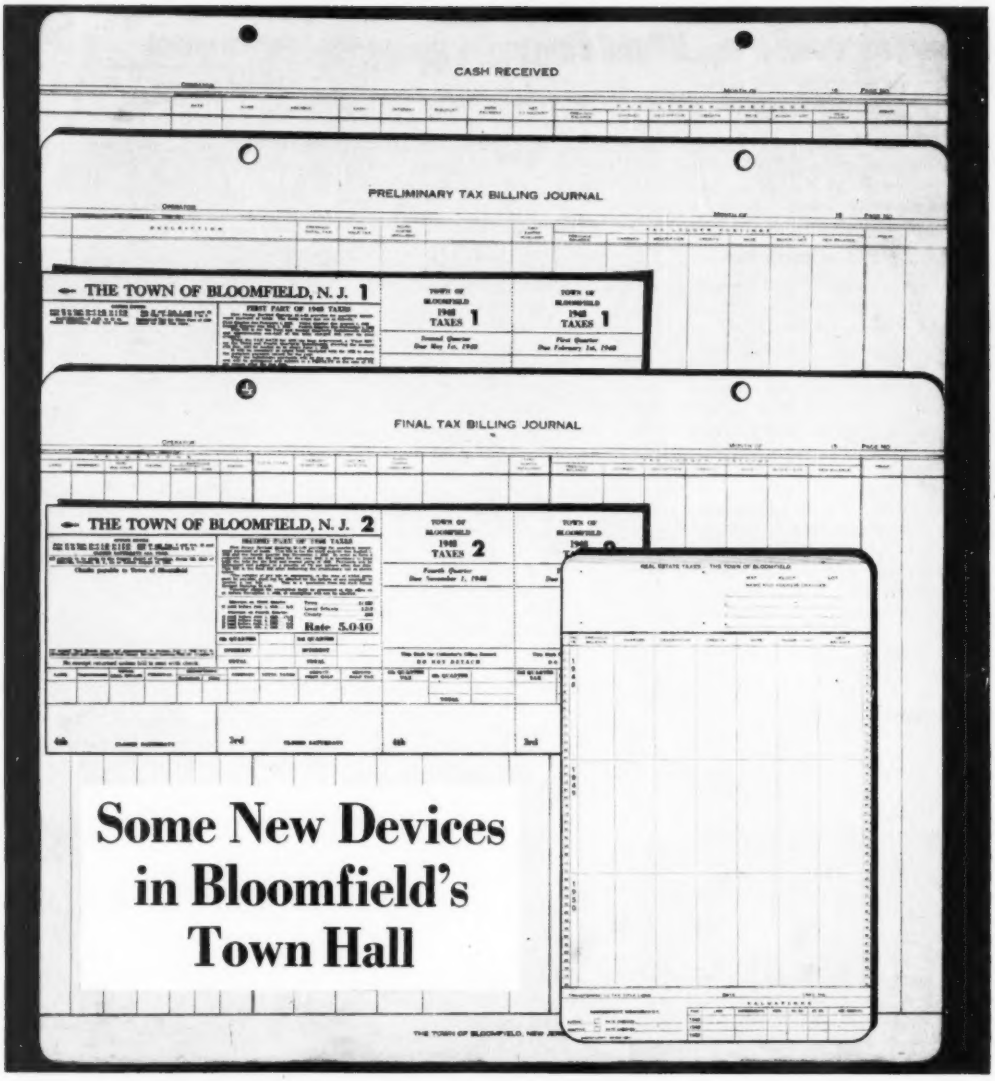
The broader the cooperation given by municipalities to the county in this regard, the greater will be the saving to the taxpayers in the development of their county park system. Furthermore, the county park program may serve a double purpose by conserving realty values at the local level.

According to an account of park influence on property values, published in THE AMERICAN CITY, April 1946, the Commissioners of Union County, New Jersey, stated that in every case where there has been a county park development, the development has been

(*Continued on Page* 143)



Here the Saddle River flows through Lodi. Areas like this are now waste land. However, they offer fine opportunities for park development in a section of the county lacking such facilities for rest, recreation, and picknicking.


CASH RECEIVED
PRELIMINARY TAX BILLING JOURNAL
THE TOWN OF BLOOMFIELD, N. J. 1
TAXES 1
FINAL TAX BILLING JOURNAL
THE TOWN OF BLOOMFIELD, N. J. 2
TAXES 2
Rate 5.040
Some New Devices in Bloomfield's Town Hall

PROBABLY most municipal departments are salted with evidence that the war is over and American production is flowing peaceward. The evidences are in new machines and devices. For instance, take the billing work of the Town of Bloomfield, N. J.

A post-war Burroughs tax-accounting machine writes the assessment roll, which is sent to the tax collector. His two Burroughs machines compute the taxes for the 17,000 parcels (twice a year) and put the amounts for each half-year on the roll. The first billing for half of the approximate total annual tax, which is based on the previous year's tax, is computed by the machine mechanically by dividing the previous year's tax into half and in turn dividing this amount into halves for the first- and second-quarter payments.

This is done by creating a preliminary tax-billing journal, which is a copy of the billing information. In addition, this journal reflects the posting of this amount to the real-estate-tax ledger for each parcel. Both the bill and the ledger are created in one operation.

The final or actual bill, produced six months later, which includes the valuations and the new tax rate, is computed mechanically for the annual tax total, and the preliminary half which had been previously billed is deducted from this amount so that the second-half tax and the third and fourth quarters are computed in a like manner and the ledger card posted with up-to-date information of the tax billing for both periods within the year.

These bills and quarterly stubs are presented for payment and receipted by tax-receipting machines at the window or by mail. The stub is torn off for office record and posting. The receipting machines provide locked-in protected totals and detail tapes. These totals are under the control of the Tax Collector and provide him with proof that all moneys deposited agree with receipts.

The receipt stubs are sorted by property location, or block and lot, in accordance with arrangement of the tax ledgers. A machine-within cash book is a by-product of the printed posting of the ledger card. Controls are maintained by tax years and the information for tax search on any piece of property is available at all times if needed.

Assessment ledgers, tax title liens, and assessment liens on ledger forms are maintained for properties requiring this information, and complete the tax accounting for a given piece of property. Personal taxes are maintained in the same fashion.

The individual ledger cards are not just any cards but are those of the Master-Craft Corporation (Shaw-Walker Co. division), Kalamazoo, Mich. They are maintained in special flexible open trays made by the Lefebure Corporation, Cedar Rapids, Iowa, and housed in a Lefebure fire-resistant safe made exclusively for holding and protecting ledger cards. In the cashier's office of the Tax Collector there are, in addition to three new Burroughs receipting machines, two Automatic Cashiers made by Brandt Automatic Cashier Company, of Watertown, Wis.

The general accounting work of the town's bookkeeper's office is performed with the aid of a similar Burroughs accounting machine. The 9,000 customers' accounts of the Water Department are handled quarterly by the use of a Burroughs utility-billing machine. This office also owns a receipting machine and a Brandt Automatic Cashier. Lincoln McCroddan is Office Manager.

Tax Collector Supervises Parking Meters

An interesting new responsibility of the tax collector, Theodore C. Hock, is the 440 Dual parking meters which have been operating for six and a half years in Bloomfield's business district. He is responsible—not the Police Department, as formerly—not only for the collection and the counting by a Standard-Johnson coin sorter-counter of the parking-meter moneys, but also for the upkeep of the meters, which are of the penny-2-cent-5-cent type. Two men handle the maintenance and repair, and the annual cost for parts averages only $300. Plans have been made for adding about 300 more meters in outlying districts. Servicing is performed by Edward Zawistowski.

A great deal of office work is performed sitting down. There is an apparent trend in the municipality not to sit in just any chair. Thought has been given to chairs designed to fit the contours and moods of flesh and bones. During the last year and a half, 25 of the engineered chairs of The Sikes Company, Inc., of Buffalo, N. Y., have found their way into the municipal offices, where their use is said to be reflected in greater satisfaction and work production. Six of the executive-type chairs are in the offices of the Town Clerk, the Bookkeeper's Department, the Chief of Police, and the Signal Apparatus Building. They are equipped with what is termed a "Fixed Floating" seat which permits the feet to remain on the floor at all times. Four of the officials' secretaries also have appropriate models featuring the feet-on-the-floor principle. In the Police Department there are 15 new Sikes reception-room chairs without swivel or patented feature. Delivered in February were three more of the executive chairs and two of the secretary's chairs. As the welfare of the town, any town, depends on the performance of the occupants of the chairs, it is felt worth while to shop around and obtain the best seating facilities.

Boy Scouts Take Over City Governments

MAJOR turnovers occurred in the city halls of both Norfolk, Va., and Petaluma, Calif., in February when selected Boy Scouts took over the reins of the city governments for short periods of time.

In Norfolk all the Eagle Scouts in the area attended a city council meeting on February 8 and were greeted by the Mayor. On the following day the same Eagle Scouts replaced the heads of all Norfolk departments for an hour. First to abdicate was Mayor Richard D. Cooke. He relinquished his post to Scout Richard Pollard.

"I hope you'll solve the annexation problem," said Mayor Cooke, who, with the other councilmen, is up to his neck in this vexing problem these days.

Each of the 18 Scouts learned a lot about their city government functions during the 60 minutes, and they put their new knowledge to work at the conclusion of their term of office in an informal meeting during which they discussed their problems.

In Petaluma the city officials proceeded on the theory that one good channel to family dinner-table discussion is through 'teen-agers, and they sponsored a Boy Scout City Government Day and a series of classroom lectures with the high school's Social Problems classes. City Manager Lohn R. Ficklin has termed the results gratifying.

The city's official family devoted its full day to playing shadow to the group of busy Scouts who replaced them.

Newspapers covered the day's activities with stories and pictures. As the result of suggestions made to the high school's faculty at the beginning of the current semester, four classes have devoted considerable study to the new charter, adopted in 1947, and to the city's annual report for 1947-1948. Finishing that work, the class chairmen invited the City Manager and two councilmen, on different days, to discuss questions which had arisen. Finally, they checked a short-answer quiz prepared by the City Manager. The teachers have decided on regular instruction of the subject for future semesters.

City Manager C. A. Harrell of Norfolk and Eagle Scout Luther Shipman.

A farm cultivator for rough mixing.

How Pennsylvania Builds Soil-Cement Roads

WARREN K. MYERS, Chief Maintenance Engineer of the Pennsylvania Department of Highways, explained how soil-cement stabilization is performed in his state, at the recent American Road Builders' Association meeting in Washington, D. C. He outlined the following procedure:

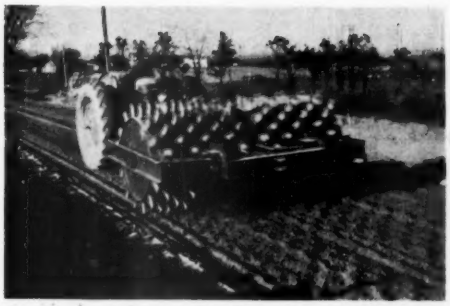
Before work starts, a field laboratory must be established to control the mixture and

A weeder to remove compaction planes.

A rotary-type mixer such as this Seaman Pulvi-Mixer.

A Galion patrol grader for mixing and shaping.

A pressure distributor to apply water.



Bucyrus-Erie sheep's-foot roller for heavy compaction.

A steel-tired roller for surface compaction.

moisture content, and to determine stability. The equipment then may be assembled and generally will include:

- A light tractor with Cultivator attachment for mixing
- A weeder to remove compaction planes
- A rotary-type mixer
- A power grader with a scarifier
- A sheep's-foot roller
- A pressure distributor to add water to the mix
- A three-wheeled steel-tired roller to provide a smooth surface
- A rubber-tired roller to provide a kneading action which results in a tightly knit surface.

On one typical job, where bank-run gravel was used, the grade was "cored out" to receive the material. The gravel was then deposited and leveled with the grader. Cement in bags was spotted at proper intervals to provide a 9% cement content. It was then spread in transverse windrows and leveled with a broom drag. The dry mixing followed, using the cultivator, and was continued until the mixture presented a uniform color. Next, moisture was applied with a water distributor and wet mixing started. After thorough mixing, the surface was shaped with a blade grader to obtain proper crown and profile. A weeder was used to remove compaction planes caused by grader tires, to prevent building up a laminated pavement. Next, the sheep's-foot roller compacted the base, the weeder was again used to remove compaction planes, and a smooth roller completed the compaction. This operation continued until a smooth surface resulted. A light application of water was then made, and rolling with a rubber-tired roller started. This roller kneaded the surface mulch into a tightly knit surface. After the base was completed and cured, a bituminous wearing surface was placed.

On this project the base cost $1.15 per square yard complete in place. Where on-site materials are obtainable, bases have been constructed for as low as $0.49 per square yard. Where borrowed soils are required, the cost has gone as high as $1.18 per square yard.

When finished, there is an all-weather surface like this.

No More Ragged Pavement Cuts

THE City of Los Angeles (population 1,238,048. 1940 census) does not intend to have its pavement blotched by ugly, ragged cuts every time a water, sewer, or gas line needs repairing in the future. City Engineer Lloyd Aldrich reports that success with the use of a power cutter has encouraged this city to specify this equipment in the future.

The requirements of the city covering cutting pavements are set forth in Section 15(c) of Specifications No. 138 and have been approved by the City Council by resolution, which is considered the equivalent of an ordinance. This specification reads as follows:

Breaking pavement, curb, sidewalk, and gutter by impact of a freely falling mass, or by a falling mass attached to a line, cable, or rope is prohibited.

The Contractor shall not use equipment to cut trenches in existing pavement which will strike a heavier blow than is usual with a hand pavement-cutter operated from an air compressor, except that heavier equipment of a type acceptable to the Engineer may be used, provided that the edges of all excavations made by such equipment are trimmed with hand cutting tools to a line which will leave a vertical face of sound, unfractured pavement.

For breaking and removing pavement or other surface improvement for purposes other than trenching, the Contractor may use heavier equipment, provided he first shall have ascertained from the Engineer the names of all owners of pipe, conduit, or other underground property in or adjacent to the area to be cut and, also, shall have obtained plans from each of these owners showing the location of the property, and shall have notified the owner thereof 24 hours in advance of using such equipment at each proposed location, and shall so perform the work that the existing property is not damaged or its functions interfered with.

Long Beach, Calif. (population 241,109, special census 1946), also is tending to follow the same practice. Although Director of Public Service James Kincaid states that the city has not yet required the practice by law, a new ordinance is being drawn up which will require such procedure. The Water Department has its own cutter and the Gas Department probably will acquire one soon.

Long Beach's Director Kincaid reports that he has watched the success of the Water Department's operations for more than a year; and is particularly pleased with the results when the cutter is used. The breaking of the surface is confined and the subsequent patch is neat and workmanlike.

East Baton Rouge Builds With Revenue Financing

THE "pay-as-you-go" sanitary-sewer system now being installed at East Baton Rouge Parish, La., is being closely watched by municipal officials everywhere. (A parish corresponds to a county in states other than Louisiana.)

Attention is focused on the project for two principal reasons. First, it is one of the largest sewer projects in the South, and second, the methods by which Parish officials will procure monies for payment of the installation are something unique in city management.

The contract for the installation is just short of $6,000,000, and the greater portion of this figure will be used for the installation of some 258 miles of trunk and lateral lines of vitrified clay pipe. The system will service 5,500 acres and provide sanitary systems for 40,000 people living in approximately 11,000 homes.

Until parish officials began action in 1941, residents living outside the city limits of Baton Rouge relied on septic systems for the disposal of all sewerage. It is estimated that 36,000 people lived within the city limits of Baton Rouge, and that an additional 70,000 persons lived in the unsewered metropolitan area surrounding the city. By the 1940 census East Baton Rouge Parish was the third most populous of Louisiana's 64 parishes.

Some 11,000 house connections will go in before the close of the year.

Program Halted by War

In 1941 parish officials decided that the inadequate sewer system would have to be remedied for the sake of health and sanitation. They set up a program that was halted by the war and shortage of materials. At the completion of the war the present governing authority, the Parish Police Jury, an elective body corresponding to a board of county commissioners in other states, buckled to the task of providing greater Baton Rouge with adequate sewerage facilities.

Organizing to carry out their plans, the section to be sewered was divided into three distinct Sewerage Districts. These were tabbed District 6, District 6A, and District 8. District 6 was actually organized on July 23, 1940, and merely re-established under the present plan. It is a rapidly developing residential suburb lying south and southeast of Baton Rouge. It contains the unincorporated subdivisions known as University Gardens, Southdowns, South Baton Rouge, Ogden Park, Bernard Terrace, Capital Heights, Goodwood Place, Lake Crest, Magnolia Ridge, and Westdale Heights. The South Baton Rouge subdivision is marginal in character, being largely of Negro population. It is adjacent to Baton Rouge city limits, densely populated and will not sustain much additional growth. The remaining subdivisions run from good to excellent in character, the average being well above the media for like developments. The population in this district has increased by 120% since 1941.

Laying 27-inch vitrified clay trunk in district 8. Notice the neat trenching and the adequate sheathing.

District 6A was organized in 1947 and includes approximately 3,895 acres of rapidly developing residential suburb. The district comprises 95% of the overlapping Sewerage District 6, which is constructing a complete system of trunk disposal sewers to which the vitrified clay laterals, to be constructed in 6A, will be connected.

District 8 was also organized in 1947. It is an area of approximately 1,400 acres located to the northeast of Baton Rouge. Principally residential in character, it comprises the unincorporated subdivisions of Hollywood, East Garden City, North Highlands, New Dayton Place, and Eaton Place.

With the area to be sewered broken into districts the Police Jury determined the amount of capital required to do the job of districts. A combination ad valorem and revenue bond issue was devised for each district and offered for sale.

The bonds for each district were offered as a unit and each bidder was permitted to submit bids for the bonds of any or all of the districts. No revenue bonds were offered for District 6, although $1,190,000 worth of ad valorem tax bonds were offered for that district. In Districts 6A and 8, bidders were required to purchase both ad valorem and revenue bonds as a unit. For district 6A, $475,000 in ad valorem tax bonds and $2,525,000 in revenue bonds were offered. For District 8, $460,000 in ad valorem tax bonds and $910,000 in revenue bonds were put up for sale.

Bonds of Each Issue Dated

The bonds of each issue were dated October 1, 1947, and were in the denomination of $1,000, numbered from one upward consecutively, bearing interest payable October 1, 1948, and semi-annually thereafter until paid. The ad valorem tax bonds are non-callable. The revenue bonds are due in 1953-1977, both inclusive, all callable prior to maturity in October 1, 1952, and on an interest payment date thereafter in inverse order of maturity, and by lot within a maturity, at percentage of principal amount.

Each issue of ad valorem tax bonds is payable from taxes to be levied without limitation as to rate or amount on all taxable property in the issuing district.

To reclaim the bonds, officiating bodies of the parish will rigidly enforce Act. No. 240, 1946 Acts of the Louisiana Legislature, which makes it mandatory for owners of improved premises located within 300 feet of the sewer lines to connect to such lines. The Act grants to municipalities and sewerage districts power to enforce such action. If the owner refuses to comply, the governing authority may have the work completed and the costs levied as a special assessment carrying with it a lien and privilege upon the property, payment of such assessment being enforceable through judicial methods.

Once connected into the line the owner is then subject to a rate system, the violation of which carries an equally heavy penalty. The schedule set up temporarily is:

	¼ *Year*
Each single-family residential unit	$10.00
Each commercial unit	20.00
Each 2-family residential unit	15.00
Each 3-family residential unit	20.00
Each 4-family residential unit	25.00
Each 5-family residential unit	30.00
Each 6-family residential unit	40.00
Each 8- or 10-family residential unit	50.00

Schools, churches, commercial and industrial units, etc., shall be charged such rates proportional to the services rendered as will be recommended by the District Engineer and fixed by the Police Jury.

A discount of 25% will be allowed on each billing which shall be paid on or prior to 15 days subsequent to the due date; a penalty of 20% will be added to all charges delinquent for 45 days or more. When any billing to an owner is not paid within six months, all charges billed but unpaid shall be considered delinquent, and the Police Jury can proceed with immediate action to a court of competent jurisdiction to recover such total amount together with penalties, with interest computed at 6% per annum, and such court costs and attorney's fees as the court may properly allow. Judgments so rendered can be recorded by the Police Jury so as to become a lien on the property of judgment debtor and the Jury can use all available legal remedies for their collection, including garnishment or attachment of monies, choses in action, or property.

The plumbing fraternity of the city will be kept quite busy for months to come because of the 11,000 house connections. These connections must be completed within 60 days of the time the lateral is run past the property. Vitrified clay pipe in available sizes was specified for the entire project, including house connections.

Because of the width of the Mississippi River at this point, no treatment of the sewerage is anticipated.

A unique specification ties the strength of the pipe to the load on the pipe in the trench and requires cradling, at no extra compensation, where the load, according to specifications, exceeds the pipe strength. Thus the contractors are rewarded for keeping narrow trenches and avoiding cave-ins, but stand the expense of unsuitable equipment, poor bracing and workmanship.

Carnegie and Smith, Baton Rouge, are the engineers on the job. They are supervising the work of three contractors who were awarded the jobs: Sullivan, Long and Hagerty of Birmingham, Ala., District 6A; Forcum-James and Company, Baton Rouge, District 6, and E. L. Dalton and Company, Dallas, Texas, District 8.

Architects Discuss Atomic-Age Building Implications

"AMERICAN Life and Architecture in the Atomic Age," was one of the key themes of the 1949 Annual Convention of the American Institute of Architects, held in Houston, Texas, March 15-18.

Evidence of accelerating decentralization trends was noted by all the key speakers on the atomic-age theme. However, it was pointed out that the decentralization trend is a "healthy" development, not only as a matter of national security but also because of its possibilities for creating well-rounded, modern centers for living and working. In fact, according to two of the speakers—Rear Admiral William S. Parsons and Sumner T. Pike, both members of the U. S. Atomic Energy Commission—the sound approach to city and structure design is to continue to emphasize *primary function*. Rear Admiral Parsons said that atomic blast and radiation flash should be added to the list of natural and man-made catastrophes which may at some time be encountered. Commissioner Pike suggested that people should stop worrying about building atomic bombproof buildings or about putting factories underground—except for a few key installations—and keep in mind that the strongest defense or the best offense in either a cold war or a hot war is the healthiest and best-educated population and the most efficient industrial machine. "Our people must have a life worth defending," Commissioner Pike said. "This and the things that flow from it are the best possible weapons in a cold war."

Major General Philip B. Fleming, administrator of the Federal Works Agency, told the architects that federal agencies would try to fit the design of their new structures into the architectural traditions of each community, and that the aim of the FWA is to cooperate with communities on well-planned civic centers by making new federal structures a part of them. "However," he added, "such centers must be more than just a group of edifices and must be considered as part of a broad city plan." General Fleming also reported on the needs for more advance planning of state and municipal public works to supplement the federal operations.

Philip M. Hauser, Professor of Sociology at the University of Chicago, pointed to the wartime bumper crop of babies as having important implications for many elements of our economy, particularly for school-construction programs. He said that elementary school enrolment in 1957 will be 46% *above* the level in 1947.

Ralph T. Walker, of the New York firm of Voorhees, Walker, Foley and Smith, was elected president of the Institute, defeating William Wilson Wurster, Dean of Architecture at M.I.T., who headed a slate put forward by a group of self-named "young progressives."

Though not an Institute member, Frank Lloyd Wright, 80-year-old vigorous exponent of modernism in building design and spacious city planning, received the organization's gold medal, its highest award.

A preview inspection of Houston's new and sumptuous Shamrock Hotel was one of the highlights of the convention.

The Planning and Uses of

Municipal Park and Playground Areas

By ROBERT E. EVERLY *

FIRST of all, in this discussion let us agree that *all parks are recreation areas*, provided we widen our concepts of recreation. Walking through a wood is just as much a recreative activity as swinging a baseball bat. Things which enliven the mind and heart are as essential to human well-being as is physical activity.

In this basic view of recreation, we park planners and administrators are, in the broad sense, recreation men. We are concerned with making available to the people of our communities all the opportunities for varied recreation activities. People are turning from the enormous urban centers to smaller and more integrated communities where there are places to live, work, play, park their cars, and enjoy sunlight and air. We must provide these facilities in our congested cities if we are to preserve them as great urban centers. We can only accomplish this through properly designed and equipped parks operated to serve the people adequately.

Meeting Basic Human Interests

In city parks which are intended to be beautiful and offer opportunities for varied recreation, we are actually designing to meet certain basic human interests. These are: ***physical activity,*** which we translate into sports and athletics and bridle paths and skating rinks; *creative drive*, which we translate into hand crafts, and the desire for expression through the media of music, drama, dancing, graphic and plastic arts, language, literature; *curiosity about the natural world*, which we translate into nature study and for which we provide trails, gardens, zoological and botanical gardens; the interest in *communication and social participation*, which we meet in forums, debates, story-telling, picnics, dances, song fests and clubs; and we are aware of the *worshipping instinct*, which we interpret in religion, music, drama, and nature. The activities we foster are for individuals and groups, for participants and onlookers, and they are organized or spontaneous, in order to satisfy human interests and drives.

These interests are what the park, school, or recreation administrator or leader is working with, and what he is planning and working for.

In this presentation, we are confining ourselves primarily to parks and play areas serving local communities.

We must keep in mind what the community is. It is *organic*, it is changing continuously, it is the place in which we work, eat, sleep, rest, play, buy and sell, and transport ourselves from one point to another. Our community is served by facilities such as a high school and a number of lower grade schools. We have government, a library, motion picture theaters, a water-treatment plant, sewerage, hotels, department stores, and, probably, parking meters. Our community population is made up of people of all ages and occupations, with diverse backgrounds and interests, having many wants and fears, people most of whom are working closely together in stores, factories, and offices, and living closely together in houses and apartments.

One of the things the community *must* do, within this environment, is provide for the recreative needs of its entire population. This is achieved through a system of parks distributed in such a way throughout the community that they are easily reached by the residents. These parks primarily afford the *opportunities* for recreation—the *places* for playing and the *facilities* for playing. Activity programs are set up by *competent personnel to encourage* group games and sports, individual hand crafts, nature study, and so on, *and to give direction* in the most enjoyable use of these means of activity.

Functions and Fundamentals

Under urban conditions, parks have three primary functions: first, to preserve or re-create the open country; second, to provide space where all age groups and interest groups may play; and, third, to relieve the hardness and monotony of the structural city by green areas, trees, gardens, and water areas.

The over-all park system of *any* community must be planned on the basis of three fundamentals: the size of the community in population and area; the characteristics of the community; and the restrictions or opportunities offered by local topography, climate, general environment, traditions and other conditions.

Plotting locations for parks in the over-all plan will depend on the following considerations: (1) size, type, number and relationship of the various parks needed; (2) adaptability of the site to the desired purpose; (3) initial development cost; maintenance cost analyzed in terms of usefulness, or *use value* to the people.

Many influences will exist to mold the plan; street systems, location of residential neighborhoods, the land, zoning, and population, to name a few. The last—population—involves the present and future distribution and density.

It is impossible to list the exact characteristics of community park systems applicable to all cities. Each system will have its own native qualities,

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just as the community itself has local qualities, making Tampa unlike Minneapolis, or Lexington different from Denver. Good planning does not impose a pattern on a community; rather, it seeks to intensify or coagulate the unique and desirable characteristics. In general, however, it can be said that *all* communities need to have tot lots, neighborhood parks, community playfields, and some special facilities.

Tot Lots

The small children's play area, generally referred to as a tot lot, is a requirement in most urban neighborhoods. It originated in the city where intensive building has ruled out family back-yards and left tots of pre-school and kindergarten age with no place to play out of doors. These small parks can be developed on one or two city lots. They provide pleasant, healthful, and protected surroundings in which small children play under the supervision of mothers and older sisters. Careful attention in landscaping this small area will lend attractiveness, and trees will supply the shade from strong sunlight. To keep the tots inside, and others out, tot lots should be enclosed by fencing or a hedge. Features which are broadly considered basic in this type of area are apparatus and play equipment such as small-sized chair swings, teeters, jungle gym, sand box, an open area covered by turf for running about and simple games, a shelter, and benches for mothers. Other desirable facilities include spray pool, paved track for wheel toys, and special apparatus.

One additional point in connection with tot lots: The size of one or two city lots will serve not only to provide play space for the very young children, but will also be small enough to discourage older children from using the area. Many communities have had the unfortunate experience of having their tot lots overrun by children as old as fourteen because the designers were too generous in space allocation. Of course that sometimes happens because the community has failed to provide ample well-located areas for the older group.

Space and facilities for pre-school and kindergarten age children should also be provided at all neighborhood and community recreation centers and other areas which have appeal as family centers. In most cases, large parks should have more than one pre-school play area.

There should be a neighborhood park within walking distance (one-quarter to one-half mile) of every home in the community. This is a place where all age groups and many interests are served, but it is intended primarily for children of elementary school age, that very energetic group between six and fourteen years of age.

Neighborhood Playgrounds

Many planners firmly believe that the neighborhood park—or neighborhood playground (which is the same thing)—is the most necessary type of park area. Designed to foster physical and mental development, it is an obvious tool in the growth of children. Areas and facilities at neighborhood parks should be as varied as possible to afford the space and activities required. Indoor facilities should definitely be included in the neighborhood center to provide indoor sports and athletics, hand crafts, dramatics, music, dancing, social activities, etc.

Out of doors, fields and courts for informal games and sports such as softball, volleyball, touch football, outdoor basketball, tennis, shuffle board, and croquet are provided.

Since the neighorhood center should be the place offering varied forms of activity to all age groups and interest groups living within a quarter to a half-mile, we want to be sure that these parks have picnic facilities, family gardens, amphitheaters, places to stroll about and enjoy our natural world, and other advantages which will enrich people's lives. Neighborhood parks must, therefore, be spacious enough to allow a pleasing arrangement of facilities without unsightly crowding. That sounds logical, and is, but in many instances it is not economically possible to obtain ten acres in the heart of a densely populated neighborhood. Then the community must find a way to acquire as much land for this neighborhood park as it can practically do, and then allocate in that area the things which can perform the greatest service. Features such as amphitheaters are admittedly less needed for neighborhood recreation than softball diamonds, and if the matter came to that particular choice, I would relegate the less used facility—the amphitheater—to a larger park located farther from the neighborhood.

Community Playfields

In type and size the community playfield falls somewhere between the smaller neighborhood park and the highly organized athletic field or stadium. The playfield contains areas and facilities for organized sports and games which are entered into primarily by youths and adults. Because it requires at least 20 acres to accommodate complete facilities, the playfield

Bathhouse and swimming pool below, and the spray pool for tots, are among the completed improvements in the Park District of Fairfield, Ill. (1940 population, 4,008), plans for which are shown on the front cover of this issue. Other contract items which are finished include grading and drainage, water extension, dredging and enlarging of the pond, drives and parking, court-games area (for multiple activities — tennis, volleyball, basketball, badminton, and general play), and playfields.

The bathhouse differs from the original sketch in that it is constructed of concrete and timber, an attractive structure combining modern and rustic successfully and blending with the other timber structures to be erected soon.

is normally located near the fringe area of a community. Under ideal conditions, there is a playfield within one mile of most homes, making it readily accessible.

Spectator sports such as exhibition football, baseball, track meets, field events and the like are the main features of playfields. It is therefore necessary to provide ample spectator seating, locker and shower facilities, and extensive parking areas. Amphitheaters, swimming pools, picnic areas, camping grounds and nature trails may be included if space will permit their installation.

If neighborhood parks can be located one mile from each other—thereby establishing a service radius of one-half mile—and playfields two miles from each other—establishing a service radius of one mile—we may locate neighborhood park facilities of some areas in a playfield. In other words, each playfield contains not only highly organized facilities but the features of the neighborhood park and a pre-school play area.

Special Areas

Special areas may provide certain types of facilities for which space is lacking in the principal parks, or to take advantage of certain natural topographic conditions for public use. This category includes areas such as bathing beaches, swimming pools, skating ponds, coasting hills and toboggan slides, tennis courts, golf courses, camp sites, gymnasiums and natatoriums, and pleasure boat docks which may be located independently of other facilities. Other areas are arboretums, nature trails, botanical gardens, community centers, amphitheaters, zoological gardens and aquariums, scenic and historical sites, etc. Most community park systems will incorporate some of these special facilities—or others not here mentioned—in their districts. Few indeed are the communities that would have all of them.

The Park-School Concept

In public park and recreation planning a main endeavor should be to achieve cooperation among all local public boards to provide the community with the best public facilities at the lowest cost. Park boards and school boards, particularly, can increase the services of each agency by working together. Also, through heightened efficiency of operation, these expanded community services are made available to the taxpayers at a lower total cost. More facilities for less money, to describe it briefly.

This is the Park-School Plan—a method we have watched grow to maturity in its home community of Glencoe, Ill.,* which is recognized throughout the country as a village of model parks and model schools, operated as an integrated facility.

For those who cannot quite reconcile the uniting of the park district area with the school district area, or the administration of educational facilities with recreational facilities, or the personnel of the school house with the personnel of the recreation center, or finances for "teaching" with finances for "playing," permit me to go back to a few underlying precepts.

The end purpose of all the instruction and training given children in schools is to provide them with the mental, physical, and spiritual (in a sense) knowledge that equips them for a satisfying adulthood among other people. The interests, impulses, drives, desires, and instincts upon which the *educational* process is founded are identical to those upon which *recreative* processes are based. Therefore, with identical bases and aims, the educational and recreational systems are, by nature, united. They should be planned together, constructed together, administered together, operated together, and maintained together. That, in large, is the Park-School Plan.

Financial Aspect

What about taxes?—it may be asked. Who pays for what? How can you ever get two boards to hold hands and work together when they have a difficult time getting along alone? The answer is, work out your own situation in your own way. Make your Park-School Plan work on the basis of complete consolidation, or mere friendly cooperation, or some place in between. But integrate your planning and the facilities you provide, and the taxpayers will thank you for more and better education-recreation centers at a lower total cost.

The Glencoe Park-School Plan developed on this basis. In 1935 the park board and the school board agreed that the park district should have complete charge of the property surrounding schools and that the boards should jointly plan for the development and maintenance of facilities for parks, education and recreation. It was decided that the new school buildings then being planned would be so designed as to provide for community activities at such times as not needed for education. It was further agreed that the pooling of resources, the sharing of facilities, the development of a comprehensive long-term plan based on educational and recreational requirements would be an efficient, economical, and intelligent way of doing business. After fourteen years under this method, Glencoe reports that this cooperation and coordination have provided the community with better facilities at a lower cost and with more efficient operation than was initially contemplated.

How the Plan Works

In the Park-School Plan, the local school board provides all *indoor* facilities for health, education and recreation, and the local park board provides all *outdoor* facilities for the same purposes at the same locations. Some of the benefits are:

1. The school board can have more funds available to spend for its buildings and include facilities for community recreation because of reduced land requirements.

2. The park board does not have to build field or community houses and can spend its funds on the enlarged ground improvements.

3. With the schools maintaining the buildings, and the park authority maintaining the grounds, there is no duplication of maintenance crews or equipment, thereby reducing annual corporate expenses. These savings can be used for improved services and facilities.

4. Assessed valuations in the immediate vicinity of a Park-School are not affected adversely to the same degree as property values near a school having a small school yard. Surveys indicate that property values adjacent to schools in the United States depreciate approximately 35 to 40%. Assessed valuations in the immediate vicinity of a Park-School can be stabilized and, in many instances, actually increase.

5. From the recreation point of view, the transition from school to play is negligible. The association between education and recreation in the minds of children and adults is unified.

6. The Park-School arrangement does much to focus the center of public interest on a single area and enables the governing boards of the parks, schools, and recreation to present a larger, more atractive and more efficient packaged unit to the community, thereby reducing tax requirements and also taxpayer objections to taxes for essential facilities and services.

7. The present trend toward shorter working hours for all people makes it mandatory for planning agencies to provide recreation areas for the leisure time activities of the citizenry, and where better can this be centered than at the school plant?

8. Children of high school age benefit by the availability of large areas for active, organized play and adults are interested in both intensive and quiet use areas for recreation. Whenever possible, these areas should be planned adjacent to or consolidated with the junior high school and the senior high school.

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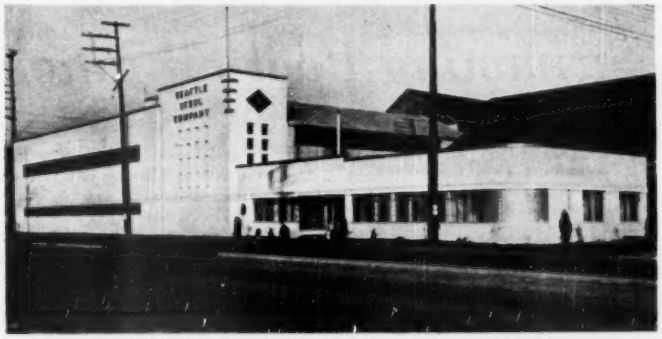
* The author is the originator of the Glencoe Park-School Plan, described in THE AMERICAN CITY for January 1940, pages 53-54.

Additional information about project planning and design can be obtained from the author. Planograph reductions of site development plans for parks, schools, and other recreation areas are available upon request from the writer at 874 Green Bay Road, Winnetka, Ill.

No. 5 of a series of "before and after" views of notable civic improvements

As Was — And As Is

Before its face-lifting, a Seattle manufacturing plant looked like this . . .



Concrete was used to convert the plant to a structure of real beauty.

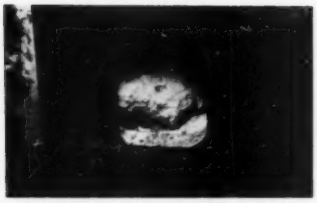
Useful and attractive municipal projects and buildings alone will not materially better a city's appearance or perceptibly alter its character. The cooperation of local business and industrial groups is most essential for community improvement programs. Two examples are shown on this page.

The First National Bank building in Riverside, Calif. looked like this before.

PHOTOS COURTESY OF THE PORTLAND CEMENT ASSOCIATION

Portland cement stucco added attractiveness and years of life to this building.

Practical Pointers



An example of filter sand cementation.

What to do to keep this often neglected phase of swimming-pool operation in shape

On Swimming Pool Filtration

By **CHAUNCEY A. HYATT**
Swimming Pool Consultant

SWIMMING pool filters, though most important from a safety or health standpoint, usually are neglected until a functional breakdown occurs.

This is particularly true with the pressure type because it is difficult to remove corroded manhole covers and replace them after inspection. Nevertheless all filters should be inspected at least once each season to see that mudball formation or cementation of the sand grains does not interfere with operation.

When inspecting a pressure filter this procedure is suggested:

1. Backwash the unit thoroughly.
2. Drain the water well below the top of the sand.
3. Open the manhole, being careful not to drop the cover down on the bed. The bed should be level and not have puddles of water or depressions or lie away from the sides of the filter shell.
4. With a shovel or spade, dig a trench in the bed at least a foot deep and carefully deposit each layer where it can be examined critically.

Inadequate Backwashing

The most frequent cause of a filter's failure to be clean after backwashing is inadequate volume of backwash water. This difficulty is usually not the fault of the operator but of the designer or the equipment company that furnished the system. One should have a special backwash pump which can produce a "reverse" flow through the filter of at least four, preferably five, times the normal filtering rate. If you have three or more filters, then the regular recirculation pump can backwash the filters one at a time. Short of this, your filter probably will accumulate organic wastes until the clarification process breaks down completely.

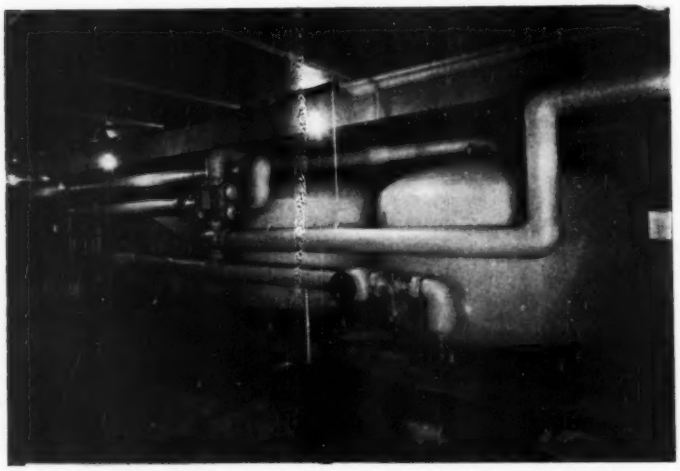
If organic accumulations still exist after backwashing, you can continue to use the filters until they fail entirely and then replace the media with new. Or you can try some homemade remedies. This is one:

Drop the water level to about 4 inches above the filter bed and add a pound of lye or sodium hydroxide per square foot of filter area. Allow this to act on the bed for several hours, or overnight; then drop the level part way down through the filter bed and repeat the process. If drain lines do not exist to make this possible, do not attempt to drain the filters through a plug in the filter shell unless you install a nipple and a control valve of some sort to avoid the possibility of being burned by the solution.

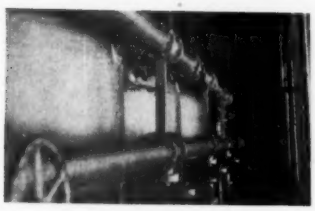
Wear rubber gloves when handling the caustic. Bad burns may result if one is careless. This treatment must be followed by a thorough backwashing job.

The lye treatment will remove the organic matter in the filter bed but it will not open closed underdrains, or nozzles. Of course, even if these clogged nozzles are opened the filter will soon return to the old condition unless mechanical defects are corrected. To open the clogged nozzles, one should pump solvents, usually acids containing inhibitors, through the underdrains. This is hardly an amateur job and requires intelligent control and special equipment to prevent damage to the filters.

To remedy a "lame" filter, first de-



A battery of Infilco vertical pressure filters with single valve control.



Typical installation of vertical pressure filters on outdoor swimming pool.

termine what backwash volume actually is available. This can be done by finding how fast the water rises in the filter under backwash conditions. If the rise is at the rate of 2 feet per minute regardless of size of the filter, then the backwash volume is adequate and there should be no problem except in very unusual cases. But if the rise is substantially less than this rate, then it might be good procedure to change from sand or quartz media to "prepared coal media," such as Anthrafilt. This weighs only about 50 pounds to the cubic foot, half as much as sand or quartz, and requires only half as much backwash volume as sand. It does an excellent job of filtering and is approved by most public health authorities.

Coagulation Procedure

The conventional filter does only a partial job of clarification unless it has the assistance of the right coagulant, and this coagulant must be applied at the proper place.

The best coagulant is aluminum sulphate ("water-works alum"). Ammonium alum never should be used! It interferes with proper disinfection.

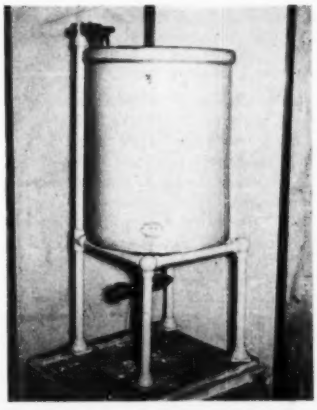
Fancy alum-feeding equipment is not required. The dosage usually is about one ounce of aluminum sulphate per square foot of filter area and this is applied immediately after backwashing, preferably to the surge tank used for adding makeup water, or through a simple "open-type" feeder to pump suction.

Unless the surge tank is provided with a resistant coating, the alum should be put in a bag or cloth and hung in the surge tank where the flow of the makeup water will dissolve it. During the filter run, an additional quantity of alum equal to the first application may be added at convenient intervals.

Throw Away the Alum Pot

The old-fashioned alum pot never was any good. It should be discarded for an "open-type" chemical feeder if no handy surge tank is already available.

An "open-type" chemical feeder is actually just a small surge tank, but is



An inexpensive "open-type" chemical feeder used for application of alum.

usually given a protective coating, if metal, or left uncoated if it is on an earthenware crock.

The water supply for this feeder may be a line from the top of the filter which then serves as a continuous air release. The feeder is usually equipped with a small float valve to prevent overflowing. The outlet line goes to pump suction. If the pump is located too far below the water surface of the pool there may not be sufficient pump suction and a suction tee may be necessary on the line at a higher elevation.

Air Releases

If your designer knew his business, your pump is located below pool level so that you have no priming difficulties. However, if your pump is above the water level it continually draws air at

Interior view of horizontal pressure filter with media in satisfactory condition as indicated by level filter bed.

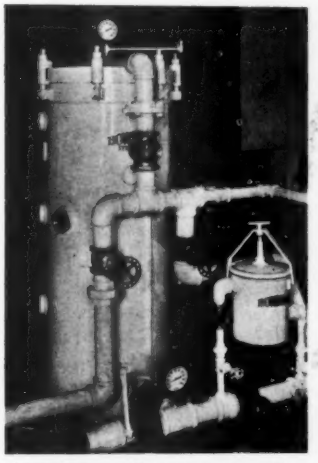
the packing glands. To release this air, tap a three-eighths or half-inch opening at the high point on the filter shells (not on the piping) and carry the flow to the surge tank or the "open-type" chemical feeder. In this manner you can have a continuous, "foolproof" air release. Unless air is released from pressure filters before too great an accumulation occurs, the clarity of the water will suffer. "Automatic" air releases usually fail to function owing to corrosion caused by chlorine.

"Cementation" of Filter Media

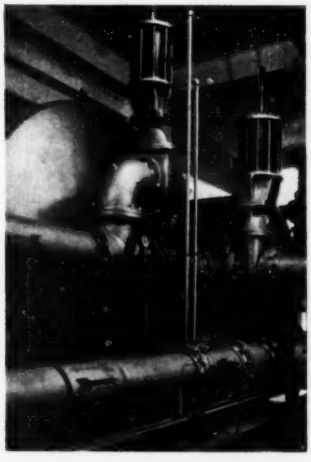
Not infrequently, inspection of filter installations discloses "cementation" of part or the entire filter bed. It frequently occurs with well water containing minerals. It may require the use of polyphosphates to stabilize the water after the filter bed has been put back to normal.

Filters should be equipped with pressure gauges on influent and effluent lines, the readings of these gauges to indicate when the filters should be reversed for backwashing.

(*Continued on Page* 165)



Diatomite-type filter is now used on new swimming pools. The one in the illustration is a Bowser System filter.



Hydraulic controls like these Iowa hydraulic gate valves are often used on the large pool filters.

Superintendent Otto Jensen, left, and H. W. Kramer, right, of James W. Carey & Associates, plant designer, at the door of the Control Building.

Health Resort Builds

New plant serving Soap Lake, Wash., uses special service-charge schedule for revenue financing

THE Town of Soap Lake is located on the shores of Soap Lake in Grant County, Wash., and has become famous as a health resort as a result of the medicinal properties of the lake. The town was only partly sewered and the method of disposal was inadequate.

Its rapid growth and the inadequacy of the sewage-treatment facilities prompted the State Pollution Control Commission and the State Health Department to order plans and specifications prepared so that construction could be started on the new sewage-treatment plant. They further required it to be in the early part of 1948. The state specified primary and secondary treatment and a BOD reduction of 85%. To meet these needs, the town retained our firm to prepare plans and specifications and supervise construction.

The town draws water both from fresh-water wells and Soap Lake. The Soap Lake water is strongly alkaline, having a pH of 9.75 and a total alkalinity of 16,377 ppm (calcium carbonate). A study of this water did not disclose any problems that it would present to the sewage-treatment process.

The equivalent population design basis used was 4,000, which includes a 40% growth factor. This figure is the average for the six-month resort season. Flows were estimated at 100 gallons per capita per day making the design flow 400,000 gpd.

Because of the large variation in flow, it was decided to use the Aero Filter process and use two primary settling tanks so that either one or both could be put into service, depending upon the flow. The plant has a single final settling tank. Economics dictated that the digester should be heated since only one-half of the cold digester volume is required when the digester is heated. Complete gas-utilization equipment was therefore installed, including a Bastion Morley boiler and Varec safety and control equipment.

Since there are numerous large gravel pockets in the area, the plant disposes of its final effluent through a tile underdrain system installed on one of these pockets adjacent to the plant site. The drain system uses 1,500 feet of 6-inch open tile laid in branches from a common header. This eliminated the need for the sewage to follow the natural drainage and discharge directly into the lake.

In September 1946 a contract was let to Morrison-Knudsen Co., Inc., Boise, Idaho, at the lump sum bid price of $80,558. This amounts to $20 per capita.

Equipment

As mentioned previously, there are two primary settling tanks. These are of the rectangular type; each is 10 feet wide, 30 feet long, and 7 feet deep, with Yeomans Brothers revolving scum troughs and sludge collectors.

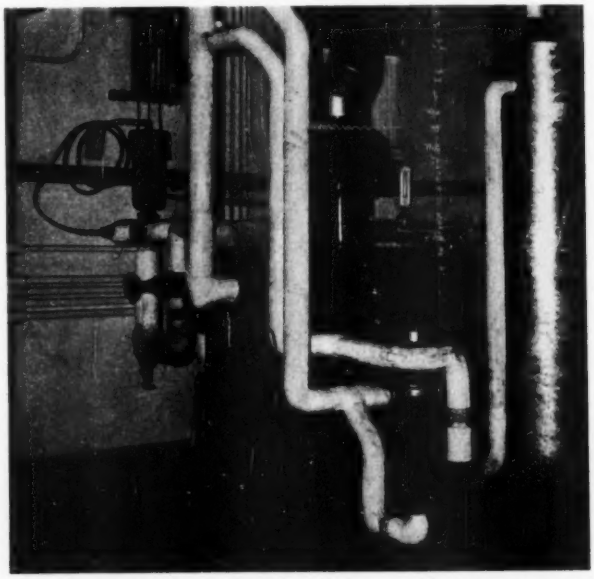
The Aero Filter system that provides the secondary treatment is of the rotary type designed to fit a concrete tank 32 feet in diameter by 8-foot rock depth and was manufactured by the Lakeside Engineering Corporation.

The final settling tank was 28 feet in diameter by 6 feet deep and uses the Yeomans Brothers "Rim Drive" type of sludge-collector mechanism.

A Marlow Simplex plunger-type sludge pump transfers the sludge to the digesters. The plant also has a Chemco M-1 vacuum-type, solution-feed chlorinator having a capacity of from 0 to 50 pounds per 24 hours if additional disinfection is required.

One of the most interesting phases of this project was the method of financing, which was worked out jointly between Harper & Sons & Co., a Seattle, Wash., bond house, and the consulting engineers.

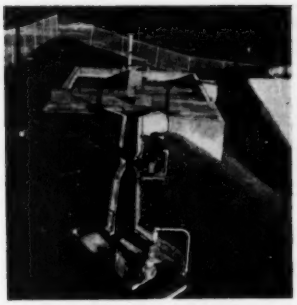
After examination of the financial



Basement of the Control Building with its gas utilization equipment.

Sewage Treatment Plant

By H. W. KRAMER, *Partner*
James W. Carey & Associates
Consulting Engineers
Seattle, Wash.



A view of the Chicago Comminutor, the Parshall flume, and the two primary settling tanks.

condition and earnings of Soap Lake, it was decided to combine the sewage system and the water system and finance the project by revenue bonds. The total bond issue covered the cost of the sewage-treatment plant, sewage-lift station, and sewer lines as well as certain improvements to the water system. The total cost of construction was $235,000, and this was the amount of the bond issue.

All services located in areas that had no sewer lines were charged $100 for each connection to defray the cost of the sewer lines. A monthly service charge is made of $1.50 per month for residences and $3 per month for multiple users.

Multiple users receive an additional charge of $10 per year per unit. The reasoning behind this adjustment is that the various cabins, apartments, hotels and trailer camps are not occupied the year around. All facilities, however, must be designed and constructed for the summer peaks. As an example of the method for making these charges, let us assume a cabin court consists of six cabins. This cabin court would then pay $3 per month every month in the year and in addition would pay $10 per year per cabin, or $60 per year. This would make the total charge against the court $96 annually. By definition a multiple user covers "Any building or structure for human use or occupancy for any purpose except a residence with only one family dwelling therein."

The basis for determining the number of units for each multiple user is shown in the two-column table on the left.

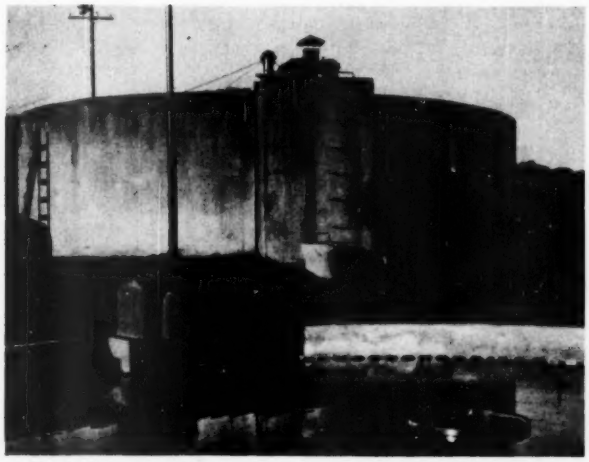
Multiple User	*No. of Units*
1. Any residence with more than one family dwelling therein	1 unit per family
2. Any such building or structure without a toilet but with any water connection	1 unit
3. Any such building or structure	1 unit per toilet
4. Hotels, apartments, boarding houses, cabin camps, auto courts, and any similar buildings or groups of buildings where any water, bath, or toilet facilities are available to the patrons or tenants of the same	1 unit per room, cabin or dwelling accommodation
5. Trailer camps or other places of a similar nature where any water, bath, or toilet facilities are available to the patrons or tenants of the same	1 unit per trailer

Service Charges

A census or count of all buildings, structures, and areas served or to be served with water and sewerage service is taken on or about July 1st of each year in order to determine the number of units to be chargeable to each such building, structure, or area for the following year. If the owner of any lot or parcel of real property within the area served by the water distribution or sewerage system has been issued a building permit at the time this census is taken, he will be charged for these additions. These charges will be chargeable for the following year to such owner and the property upon which such building or buildings would be constructed.

Since the Town of Soap Lake is primarily a health resort, the rate structure was adapted to the principal commercial activity. So far as we know the annual multiple-user charge is unique.

The sewage-treatment plant was completed in January 1948, and has performed satisfactorily since it was placed in operation. The credit for being the guiding hand in the instigation and satisfactory completion of this project goes to Soap Lake's Mayor, Mrs. Margaret Waltho. The complete sewer system and treatment plant has been operated by Otto Jensen, Water and Sewer Superintendent.



Rim-drive final settling tank, foreground, and Aero-filter, back.

Municipal
Public
Relations

The City Tells Its Story

By HENRY DAVIS NADIG, *Director of Public Relations, New York Regional Plan Association*

Municipal recreation advanced by MPR; several reports are cited

EXPERT use of public relations has played an important part in bringing public recreation into the prominence it holds today. The gains in municipal promotion of recreation are most significant in those cities where the value of municipal public relations has been recognized by officials and its tools purposefully applied. The opportunities for MPR here are practically unlimited.

NRA Leadership

The field of recreation has been particularly fortunate in having an organization like the National Recreation Association which not only provides technical experience in the many aspects of recreation itself but also has been a pioneer in the utilization of public relations for this specific phase of municipal activity.

Publication by the Association in 1946 of the manual "The ABC's of Public Relations for Recreation" was an indication that this organization recognized the need for handling recreation public relations in something more than a hit-or-miss fashion.

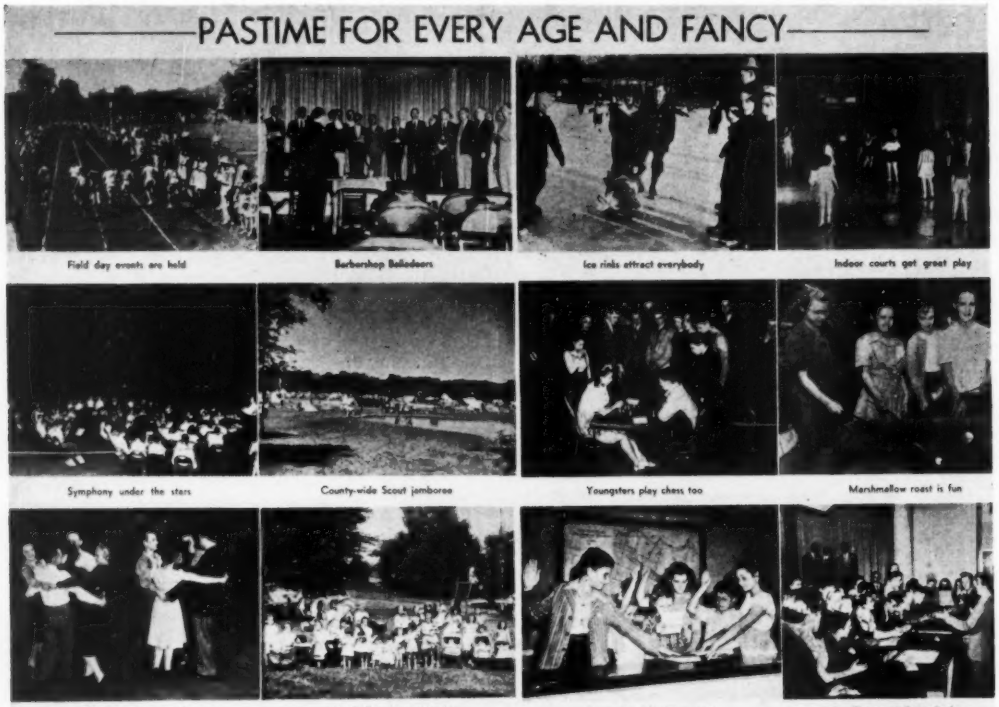
Municipal recreation activities not only are being stepped up and streamlined by an increasing number of municipalities, but they are being talked about, publicized, and emphasized in broad public information programs. Press, radio, films, schools, meetings, and publications are all becoming more and more used for promoting recreation.

It is a fact of no little significance that the Chicago Park District, a separate administrative unit with 135 parks and many related facilities, has an experienced public relations man as Director of Public Information Service. The production of printed matter alone is a large item in this service.

The Chicago Recreation Commission, a department of the city government, among other publications produces a monthly four-page news sheet, "Recreation News," highlighting recreational events.

Reports Show Progress

Recreation looms ever larger in the municipal activities of both the small community and the large city. This you can see by the annual municipal reports. Illustration of the kind of progress that is being made is indicated by the Teaneck, N. J. (popula-


PASTIME FOR EVERY AGE AND FANCY
Field day events are held
Barbershop Balladeers
Ice rinks attract everybody
Indoor courts get great play
Symphony under the stars
County-wide Scout jamboree
Youngsters play chess too
Marshmallow roast is fun
"Swing your partner!"
"My Dolly's the prettiest!"
Lessons in civic government
The pause that refreshes

Center spread on recreation in the Teaneck, N. J., Annual Report.

Chicago Park District
GENERAL
INFORMATION
1948
THE CHICAGO PARK DISTRICT JAMES H. DAILEY, President WILLIAM L. McFETRIDGE, Vice President JACOB M. ARVEY, JOSEPH W. CRAMER, JOHN H. LEVIN, Commissioners

Front cover of one of the many publications of the Chicago Park District.

tion 35,000), and Norfolk, Va. (population 235,000), annual reports just received.

These are municipalities in which local officials have become keenly aware of the need for informing the public on what the respective town or city has to offer; where also, recreation may well be regarded not only as a builder of healthy and happy citizens but also as a builder of good will and understanding of the business in which they are all stockholders.

Recreation Highlighted by Teaneck

Under the able township management of Paul A. Volcker, Teaneck became the first municipality in its county to have full-time recreational leadership. The Teaneck program ranges from kiddie movie shows to a "Fat 'n' Forty" League, from a teenage social group to a retired men's club —the latest addition to the very progressive recreational program carried on by Teaneck with two full-time officials and 40 part-time assistants.

Teaneck is sufficiently (and properly) proud of its municipal recreation progress to feature it in the annual municipal report with a center spread of 12 photographs, as shown in one of our illustrations.

The Teaneck annual report, 44 pages plus cover, incidentally, is quite in line with the trend of reporting by picture as well as by word, and it is an excellent piece of work for popular consumption. A happy thought was the inclusion of a large folded map of the Township, with a directional finder for locating streets and important buildings —an excellent bit of MPR!

Norfolk Annual Is Tops

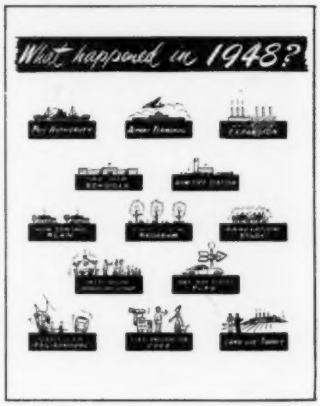
From Norfolk has come the best annual municipal report I have yet received. "The Norfolk Story," 32 pages (about this page size) plus cover, is a masterpiece of easy-reading text, excellent photography, appealing layout, and good typography.

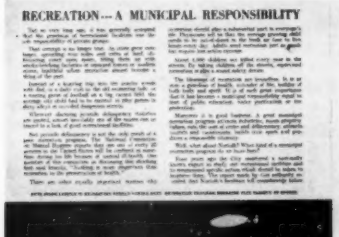
Aside from these physical aspects, it has in notable degree the chief requirement for a good annual report: something to tell. It is told so well from cover to cover, is so humanly, so understandingly and understandably presented, and so alive, that it will be hard to beat—even to match.

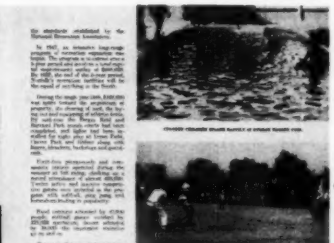
"The Norfolk Story" is not tricky: no new and untried techniques of type of photography or layout are contained in the pages. It is just that the combination of having a real story to tell and doing it so darned well has produced a superb piece of annual report-

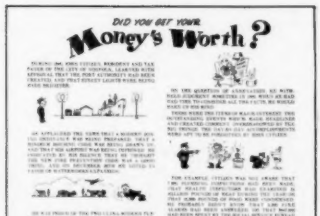
(*Continued on Page* 165)

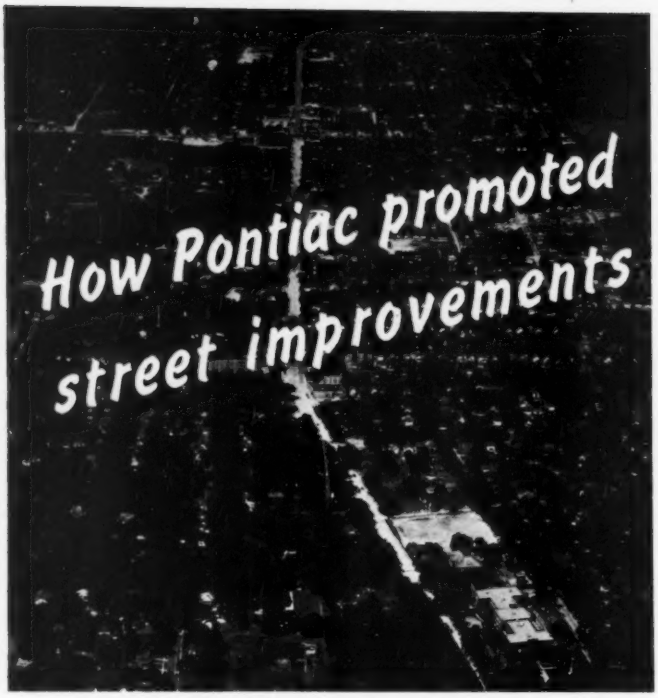
Below are shown three pages from "The Norfolk Story," the 1948 Annual Report of Norfolk, Va. At lower left is reproduced the two-page spread given to recreation in the same book.











Aerial view of Pontiac, Mich.

Public acceptance of a special assessment was required and sold because of property tax limitation

By GEORGE BEAN
City Manager
Pontiac, Mich.

IN September 1947, the city, with virtually no warning, placed a special assessment bill on every owner of real property in the City of Pontiac, Mich. (population 64,928, 1940 census).

The need was urgent, because Pontiac had to have major street improvements and could not pay for them under the 15-mill tax limitation.

Two of the projects, Oakland Avenue and Huron Street, could not be postponed without losing state and federal grants totaling over one-third of a million dollars. These grants cover more than half the cost.

At the same time the principal arterial streets were going to pieces. They needed immediate recapping to save the concrete base. To delay would mean complete replacement later at a much higher cost.

All this was pointed out in a letter from the city government to the property owners when the assessment was made. It was also shown how every effort had been made to assess fairly, and indicated the city's share in the cost.

The highest assessment was $5.20 per front foot for fronting property for an eight-inch concrete pavement including street lighting. Property owners living on one of the recapped arterial streets will pay only $1.00 per front foot for the two-inch bituminous recapping. All owners with property fronting on the arterial streets also paid the general city special assessment based on assessed value.

Inadequacy of Former Financing Methods

Pontiac is a 15-mill city. All general property taxes for operating the city, the schools, and the county could not exceed 15 mills. Only taxes to pay the bonded debt could be levied *above* the 15 mills. The City of Pontiac's share of the 15 mills in 1947 was 5.9379 mills on an equalized valuation of $133,385,750.

Since the city came under the 15-mill limit in 1935, the full cost of street improvements had been assessed against the fronting property except for state or federal assistance on certain highways. Where the fronting property was publicly owned, the city had contributed the assessment out of its annual budget. The amounts which could be paid by the city in this way were so limited that street improvements were virtually halted.

The expense of constructing the major streets was such that assessment of the full cost to the fronting property would have been exorbitant. Such streets cost more because they serve the whole community and must be wider and stronger than residential streets to carry the buses and other heavy traffic.

In order to remove these obstacles, the City Commission decided to broaden the special assessment policy. It arranged that the cost of street improvements in front of publicly-owned property and a portion of the cost of the arterial streets could be assessed against practically all of the real property in the city.

Benefits Accruing to Real Property

The City Commission decided that all real property with the exception of unplatted (farm) lands and public property should be assessed according to valuation. It reasoned that the city as a whole benefited from the major street system. Improved main streets would facilitate the movement of traffic and tend to reduce congestion. All areas would become more accessible — improving fire and police protection as well as transportation and delivery services. Good streets would reduce dust and noise; they would reduce auto repairs and save the driver's time; they would make Pontiac a more attractive city. These are benefits which increase the desirability—hence the value—of property in Pontiac.

Property owners on local or residential streets would also benefit by having trucks and other heavy traffic kept off their streets except for local delivery purposes. If a complete system of main streets is provided, such traffic can legally be prohibited from using the local streets.

Good streets would particularly benefit the downtown and other business areas. Convenient travel for the maximum number of people is the most important condition establishing the value of such property.

Religious and fraternal properties were included in the assessment, because the courts have ruled that—since the improvement benefits the property and increases its value—such property should be subject to all special assessments.

Personal property was not included in the assessment district. The courts have determined that the benefits from public improvements accrue primarily to the land—including the structures thereon. An assessment on both real and personal property has been declared to be a tax, and—as such—would have been subject to the 15-mill limit.

Publicly owned lands were excluded from the special assessment district because the city does not have the power to assess such lands.

Unplatted (farm) lands were excluded from the assessment because it did not appear that such land would necessarily be developed during the life of the improvements. Pontiac has sufficient land already platted to provide for any expansion in the near future.

Benefits Accruing to Fronting Property

One problem was that of determining how much the property owner on a major street benefited. The Commission reasoned that the benefit was similar to that which accrues to a residential property for a comparable improvement. However, the extra width, thickness, and lighting required to handle *other* than local traffic should be assessed against all real property owners as described above.

Courts Have Upheld "Reasonable" Assessments

Another was that of dividing the cost to be assessed among fronting property owners and other real property. To do this the City Commission had to use its best judgment, based on the recommendation of the City Manager, the City Assessor, and the City Attorney. A few persons have questioned whether this particular method of assessment would be upheld in courts. In view of the many decisions which the courts have made upholding any reasonable assessment there is not much doubt on this point.

Advantages of Special Assessment

The special assessment program which the City Commission is following has certain advantages. It was a pay-as-go financing plan. The people knew exactly what they were paying for. There would be no old debts to pay off in future years. It came at a time when the property tax rate was the lowest in 30 years. Even when this special assessment bill was added to the regular tax bill the total was far below the average tax bill in other cities. It was less than half the 1928 Pontiac tax rate.

As mentioned previously, the general city special assessment provided money for the city's share of the construction of two concrete pavements and the recapping of certain arterial streets where the concrete base was disintegrating. The concrete pavement on Oakland Avenue is 44 feet wide and the one on Huron Street is 66 feet wide. Both pavements are 8 inches reinforced standard concrete with the necessary curb, gutter, and drainage. The work was done by the state on contract as state highway projects.

The paving work was aided greatly by the contractor's use of modern, efficient equipment. At the batching plant a Butler 250-barrel cement bin proportioned the cement. This bin had an electro-interlocked cement-weighing batcher and a 400-barrel auxiliary bin. A 34-5 Multi-Foote paver mixed and spread the concrete and a Jaeger Lakewood finishing machine gave it a rough finish. This was followed by a Koehring longitudinal finishing machine with an automatic screed shift. The concrete was cured with Truscon curing compound.

Base Contents

The recapping of older concrete pavements was put on eight miles of principal or arterial streets. It was hot mix, hot laid, asphaltic concrete surface course, BPR Class I-1 Michigan State Highway Department Specification 31.11 using 100% crushed coarse aggregate. The material contents were:

Asphalt 85-100 penetration	5.5%
Filler	2.7%
Sand	3.5%
Coarse aggregate	53.3%

It was laid in two 1-inch courses. The base was primed with AE-2 emulsion. The base course approximated 115 pounds per square yard. The top course was 105 pounds per square yard. The bituminous concrete work was done by the Ann Arbor Construction Company.

The asphalt plant, located at Clarkston, Mich., about eight miles from the City of Pontiac, was originally a Merriman plant. It was completely rebuilt over a period of years, both modernized and motorized. Both the boiler and dryer were oil-fired. The pugmill type mixer had a rated capacity of 2,000 pounds but 2,400 pounds was being mixed. The plant was equipped with automatic feeding devices for cold material, automatic dust-handling equipment, Kron dial scales, indicating and recording thermometers, mix-timing devices, and meeting the rigid requirements of the Michigan State Highway Department. Plant capacity was approximately 50 tons per hour.

The Adnun black-top paving machines were used, as well as one Galion 8-ton tandem roller and one 10-ton Buffalo-Springfield tandem roller. The distributor used for priming ahead of laying bituminous concrete was assembled in the company shops and had a capacity of 800 gallons. Manhole and other service castings were raised between the first and second course of bituminous concrete in order that they might be more perfectly adjusted to the new grade. They were removed by the crew who used 110-cubic-foot air compressor with two paving breakers.

Staff

Because of the accumulation of work ahead of the asphalt plant, two shifts were operated to take full advantage of the daylight hours. Labor, both skilled and unskilled, and on both plant and street crews, was changed in the middle of the day. At the Ann Arbor Construction Company, the work was in the charge of Harry Baxter acting as general superintendent, and Frank Field acting as project superintendent.

If it had been desirable in 1948, the City of Pontiac would have used its special assessment powers again to do additional arterial street construction and repaving. However, a new state law removing the 15-mill limitation permitted the money to be raised under a general tax levy. This method was used because a broader tax base was possible. The following table will indicate this fact:

Year	*Millage*	*Amount of Return*	*Method*
1947	3.5	$429,000	General City Special Assessment
1948	3.3	452,000	General Tax Levy

There was some legal question raised as to the applicability of the new state law to the year 1948. However, the legal question was not raised, partly because of important legal considerations arguing for its applicability, and partly because of a practical set of circumstances peculiar to Pontiac.

The millage rate for public improvements on the general tax levy was lower than it would have been under the special assessment method (see the table above). If there had been a court decision against applying the state law in the year 1948, the City of Pontiac would have used its special assessment powers to raise the money that had already been spent during the year for public improvements. A court decision forcing the use of the special assessment method would have meant an actual increase in millage from 3.3 to over 4.0 mills for real property owners to raise the same amount of money.

Therefore, although it has been only used once, Pontiac has a broader and sounder approach to the special assessment method of financing where benefits from planned public improvements can be reasonably and fairly determined.

IDEAS from SWEDEN (PART II)

FOR AN AMERICAN CO-OPERATIVE HOUSING PROGRAM

By DONALD MONSON*
Senior Architectural Planner
and
ASTRID MONSON
Senior Economist
Detroit City Plan Commission

HERE are seven aids by which Swedish housing has been stimulated.

1. Mortgage Credit

The key to Sweden's present housing program is the government's policy of cheap credit. This is part of a well-integrated national economic policy which involves the realization of certain housing goals. Among them is production of an adequate number of new dwelling units to eliminate the housing shortage in five years, before attempting any rebuilding of sub-standard units; reduction of the ratio between a family's income and its rent to 20%, compared with a pre-war figure of between 30% and 35%; and improvement of space, equipment and occupancy standards to the point where all families enjoy modern conveniences and have an adequate number of rooms for their size.

Before World War II, Sweden enjoyed a period of economic prosperity and a moderate building boom, 70% of its housing being built by private industry and 30% by co-operative associations and government agencies. During this period the housing co-operatives grew rapidly without any special aids, their required 20% to 30% share-capital investment being counter-balanced by monthly charges 25% below rentals in comparable private housing and by greater amenities. In 1939 45,000 dwelling units were built in Sweden, whose total population at the time was about 6,000,000. The war, however, brought about a state of uncertainty on the part of private builders which cut housing production down to 20,000 units in 1940 and 12,000 in 1941. Private capital refused to enter the field and the housing shortage rapidly grew to serious proportions. As a result, in 1941 the government instituted a new policy of stimulating housing production through third-mortgage supplementary loans and guaranteeing stable interest rates, with the result that by 1944 housing production had reached 33,000 units and by 1946, 45,000. It has not exceeded this level since because of labor and materials shortages and investment-capital allocations.

Before World War II the usual mortgage system in Sweden included 60% first-mortgage loans from banks or other private sources, and 10% second mortgages, also privately financed, at a slightly higher interest rate. Between 1941 and 1946 these were supplemented by state third-mortgage loans of 20% to private speculative builders and 25% to co-operatives and municipalities, bringing the total mortgage loans up to 90% and 95%, respectively. It was soon found that municipalities were unable or unwilling to invest the remaining 5%, and that the number of families who could afford to buy the needed 5% share-capital investment in the co-operatives was limited. The greatest need was found to be for straight rental housing without down payment or share investment, and therefore, in July 1946, state credit was increased so as to supplement the 70% first and second mortgages as follows:

1. Private builders get 15% or 20% third mortgages to total 85% or 90% of cost.
2. Cooperatives get 25% third mortgages to total 95% of cost.
3. Municipalities or quasi-public joint bodies, consisting of representatives from both the municipality and the co-operative, get 30% third mortgages to total 100% of cost.

At the present time, 90% of all housing is being built by cooperative, municipal, or joint agencies, with ordinary co-operatives, which still require 5% down payments, building 20% and municipalities and joint corporations building 70%.

2. Interest Guarantees

Unlike our custom, in Sweden the interest rate on a mortgage fluctuates from year to year unless a special provision for a "frozen" rate is written into the contract. The Swedish government

* The authors have been participating in the organization of a 500-family cooperative housing development in Detroit. They recently returned from a trip to Sweden, Denmark, Finland, Holland and England, where they studied housing and city planning trends.

A playground for children and a breathing space for adults in an "HSB" housing development at Reimersholme. Such playsites are also found along rivers in Sweden.

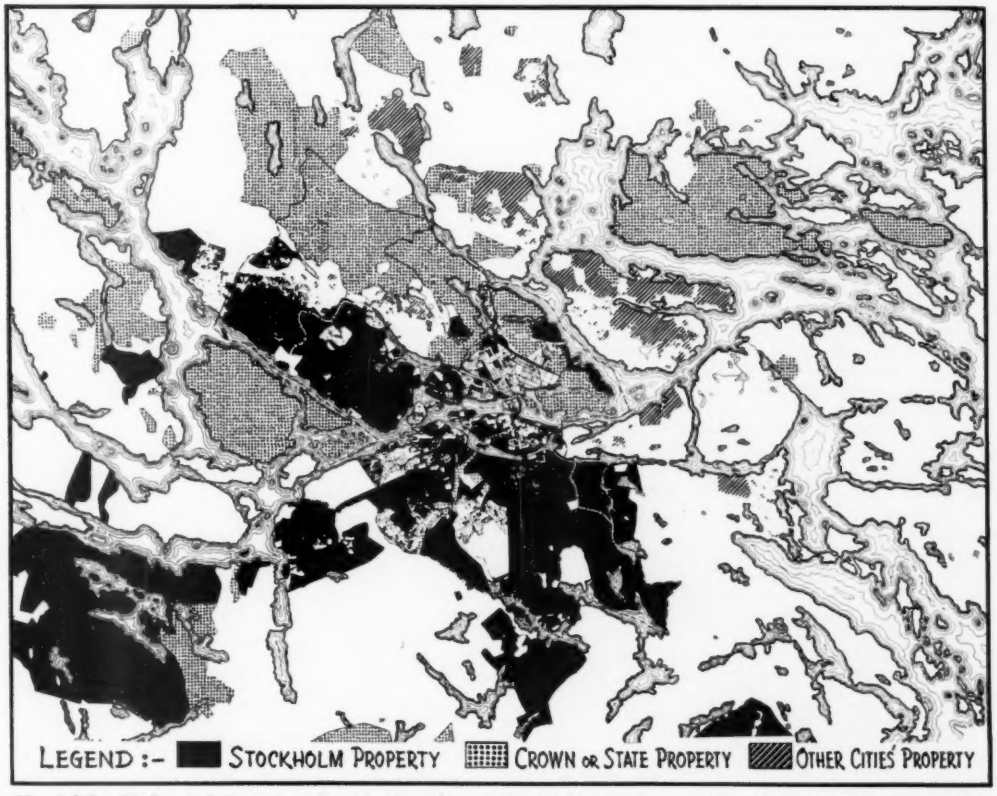
has encouraged low interest rates for home construction, with the result that although in 1942 mortgages cost 4½%, the rate is now 3%. Furthermore, builders—private, co-operative or municipal—are guaranteed reimbursement by the government of any rise in the rate during the life of the mortgage above 3½% on first and 4% on second mortgages. Third mortgages are written for 40 years at 3%.

These credits and guarantees have operated to bring private capital back into the building field to the extent that, in order to protect the value of the Swedish kroner and avoid a serious inflation, limits had to be placed on the amount of money which could be invested in housing. At the present time, the government has a yearly investment "budget" which allocates the amount of capital which can be invested in each industry. The amount set up for housebuilding is further allocated between various towns on a quota system. This, together with materials allocations and labor quotas, sets the top limit of the number of new houses which are allowed to be built per year at 45,000. In terms of Sweden's population of 6,800,000, this is a level comparable to a rate of 1,000,000 homes per year in the United States, but whereas our post-war housing production of approximately 800,000 per year has been available for the most part only to the top 30% income levels, 90% of Sweden's new housing is available to families of average or low income.

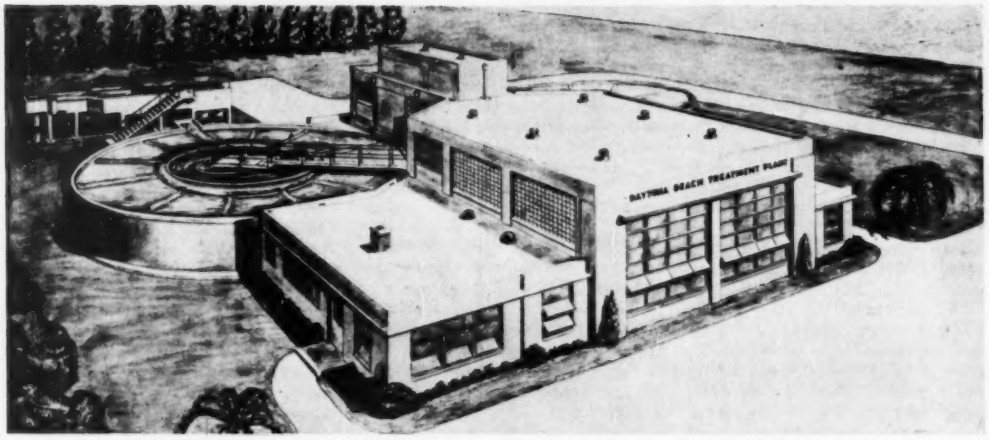
3. Supplementary Loans (Capital Subsidies)

Before World War II Swedish housing co-operatives received no subsidies, the distinction between the roles of public housing and the co-operatives being the ability of the co-op members to pay the full economic rent, whereas housing for the lowest income groups had to be subsidized by public funds. Sweden, like all European countries, has, however, suffered from post-war inflation, though strict policies of rent control, price control, and rationing have kept prices down to 60% above 1935 levels. It has been a basic policy of the Labor Government to keep rentals at 1939 levels for comparable accommodations, including newly built housing. This would have resulted in an irreconcilable gap between 1948 building costs and 1939 rent levels, had the Government not instituted a third kind of aid in the form of a "supplementary loan" to cover the difference between the capitalized value of the permitted rent and the actual current building cost. This loan runs interest-free for ten years, at which time it either becomes repayable out of higher rents (if by that time the general rent level has been allowed to rise in line with a permanently higher price level), or is cancellable and written off (if rents at that time are not high enough to enable its amortization). In order to receive this loan, a builder's costs are checked closely by government experts, and he receives only the difference between such "approved" costs and his capitalized rents. Both state and municipality share in carrying this "overcost," 80% being contributed by the government and 20% by the municipality. All builders are eligible to receive this type of aid.

(To be concluded next month.)



Map of Stockholm and its metropolitan land reserves. Housing has been promoted as a result of the city's policy of leasing sites on outlying municipal land to private individuals and co-operatives.



A drawing of the experimental sewage treatment plant serving Daytona Beach, Fla.

Experimental Treatment Plant Cuts Area, Cost Requirements

The "Daytona Beach Process" uses waste lime sludge to provide high-rate sewage purifications. Space requirements are small

THOSE municipal officials charged with sewerage and sanitation have a new term for their vocabulary and a new tool for their work—the "Daytona Beach Process." This new method of sewage treatment uses waste lime sludge from the city's water softening plant, and it gives evidence of making large savings in plant construction and operation costs. Daytona Beach has a water-softening plant, and therefore has plenty of waste lime sludge available. The new installation can be considered a plant-scale experimental unit.

Sewage-treatment-plant designs, when they use intermittent sand filters, require an acre of ground to serve 1,000 persons. Using contact beds, the same area can serve 5,000 people. By using trickling filters the acre of ground will serve 20,000 people, and with the activated sludge process, the figure goes to 150,000 people.

However, in Daytona Beach, Russell and Axon, consulting engineers, have designed a plant serving 70,000 people and have placed it on a plot of ground covering approximately a quarter of an acre. By a single proportion, if this type of plant were built to cover an acre of ground it could serve 280,000 people. Thus it increases the usefulness of the plant area by 75%.

The comparison is not completely fair, since a well-designed plant providing secondary treatment will do a somewhat more thorough job than is expected of the Daytona Beach plant. Area requirements can be reduced because the new design requires only a 1.6-hour detention period.

Tests Made First

Decision to build the plant resulted from pilot-plant tests made by Russell and Axon and Infilco, Inc. The tests, developed under the direction of A. A. Kalinske, Director of Development for Infilco, used a small demonstrator unit able to handle 2 or 3 gallons of sewage per minute. As mentioned previously, Daytona Beach has a water-softening plant using the lime-soda ash process. This yields large volumes of waste lime sludge that normally have to be thrown away. Mr. Kalinske mixed the sludge at the rate of about 200 to 300 ppm with the raw sewage and allowed the mixture to settle. This produced a supernatant whose BOD had been reduced by 50%. In further tests, using the Accelators, this reduction was boosted to 65% because of the more efficient contact in this unit of the softener sludge with the sewage.

With the addition of about 15 ppm of alum to the lime sludge and the sewage, the Accelators produced a BOD reduction of 80% and about a 90% reduction in suspended solids. By adding 5-ppm activated silica, the unit produced a sparkling, clear effluent.

The use of the lime sludge seemed most important. Tests that omitted it and used only the alum and activated silica consistently gave poor results. The substitution of finely ground limestone, passing the 200-mesh screen, gave results comparable to those obtained when using the lime sludge.

The sludge withdrawn from the Accelators showed excellent dewatering characteristics. Tests showed it able to be dewatered quickly either on sand beds or vacuum filters. Mr. Kalinske made no digestion tests.

On the basis of this, Russell and Axon, who have for a long time argued stoutly against the high cost of sewage-treatment construction, laid plans for the present plant, which is going into operation this April. Before the Florida State Board of Health would approve construction of this plant, the state insisted on a manufacturers' surety bond to guarantee the required BOD removals. The manufacturer very willingly complied with this request.

In addition to providing a sludge that is easily dewatered, the process also has other advantages. The calcium carbonate supplied by the waste lime sludge is little more than the equivalent of "agricultural lime." Many soils require both organic material and lime.

After the Daytona Beach plant is in full operation, the consultants plan on experiments directed towards developing the sludge for a satisfactory commercial fertilizer.

The consulting engineers feel that the small size of the plant offers many advantages that will lower the cost of sewage treatment still further. The space requirements are so small that it is conceivable that such a plant can be constructed entirely underground in a park, under a street, or in a commercial or residential district. In fact they feel that it con be constructed anywhere that a conventional large sewage-pumping station can be placed.

This, the consultants believe, could possibly bring a new concept in the design of sewage collection systems. Individual, strategically located plants of this type conceivably could eliminate the high cost of outfall and interceptor systems required for transportation of sewage to one conventional isolated plant site, and thereby lower excessive capitalized construction costs.

As mentioned previously, the plant has just been constructed and put into operation. When plant laboratory results become available, the Daytona Beach officials and the consulting engineers plan to release them.

New York's Need for Water Poses New Problems

TAPPING the Delaware River will produce a 50% increase in New York City's fast-dwindling water supply by 1954, 15 years after the time it was proposed to have the additional 540,000,000 gallons daily on hand, and the cost of the necessary work will be $167,000,000 more than originally contemplated.

Even so, it was brought out at the annual meeting of the American Society of Civil Engineers, held recently in New York City, unless the rate of increased use drops off materially, additional water will be required shortly after the full yield of the Delaware sources becomes available.

Calling the furnishing of an adequate water supply for New York City "a never-ending problem," Roger W. Armstrong, Chairman of the City's Board of Water Supply's Board of Engineering consultants, asserted:

"Before the completion of the Catskill System it was found necessary to start investigations for new and additional sources, and the same is now true with respect to the Delaware System. Studies are now in progress to this end.

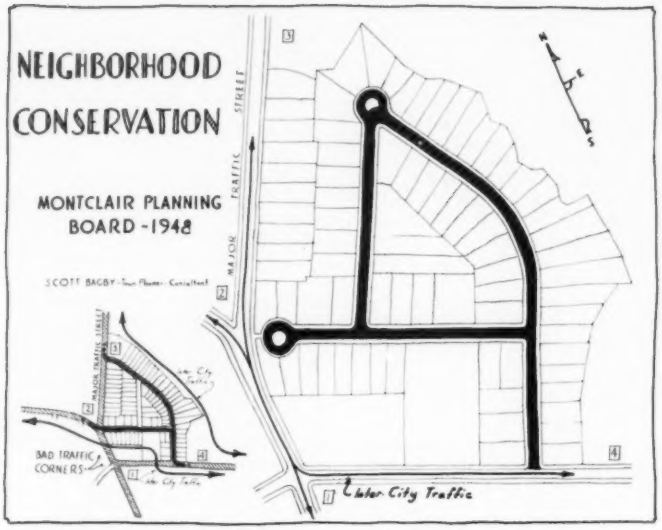
"If no unforeseen circumstances arise to interfere," Mr. Armstrong said, "the Delaware Water Supply System, which was proposed in 1927 to be completed in 1939 at a cost of $273,000,000, will be completed about 1954 at a present estimated cost of $440,000,000. The delay has been due to several causes—legal obstacles, financial stringency, and the inability to obtain construction equipment and materials when the country was engaged in and recovering from the effects of World War II."

Mr. Armstrong described the work involved in bringing Delaware River water into New York. It consists of impounding reservoirs on three Catskill Mountain streams—the East Branch of the Delaware River, the Neversink River, and Rondout Creek, and a pressure-tunnel aqueduct from the Rondout Reservoir to New York City. Water from the reservoirs on the East Branch of the Delaware and the Neversink Rivers are delivered to Rondout Reservoir through aqueduct tunnels 25 and 5 miles long respectively.

Evolution in the Battle of the Swimming Suit

See "Now and Then in Our Park Systems" on page 75 of this issue.

Redesigning Old Neighborhoods To Compete with New Ones



Closing two street ends will conserve this Montclair neighborhood.

By **SCOTT BAGBY**
Town Planner
Montclair, N. J.

MONTCLAIR is actively tackling the problem of neighborhood conservation. Montclair has asked itself the question—What does a new modern subdivision offer that our older neighborhoods do not offer? Most of the existing neighborhoods have better services, better police and fire protection, and better location than new developments miles farther out. The better new developments, however, can offer designed protection against through traffic and designed protection against obsolescence of surrounding areas. This leads to the realization that existing good home neighborhoods in well-served, convenient locations in all urban areas can compete with new development by redesigning some of their outmoded street patterns.

The accompanying sketch shows the Fieldstone neighborhood. The diagram on the lower left illustrates that while all major traffic was supposed to use cross-hatched streets, a growing proportion of the traffic was by-passing two bad traffic corners by utilizing the residential streets as shown in black.

The Fieldstone neighborhood group first became interested when they were shown that the privacy of their neighborhood could be protected by the simple device of closing two street ends. They asked questions:

"What if my house catches fire?"

"What if I need the police in a hurry?"

"Will my garbage collection and snow removal be as efficient?"

They found out that the distance from the redesigned subdivision to the fire station is perhaps lengthened, as the most inaccessible house in the redesigned subdivision may be the same relative distance from the fire or police station as a house one or two blocks farther down the main street. The important point, however, is that the increased travel distance is one or two blocks instead of five or ten miles, and existing values can be stabilized and even increased over a period of years.

In studying snow removal and garbage collection, the Public Work Department established standards for the radii of the turnarounds that will result from the street closings. Sharper-turning vehicles will also be requested when orders are placed for new equipment.

The neighborhood group petitioned for the street change. This involved setting some new precedents, and the town fathers moved cautiously. On November 16, the ordinance to make the street changes was passed. Over three-fourths of the owners in the area were in full accord with this action, agreeing to 100% local assessment for the improvement. In actual practice, 10 or 20% will probably be assessed against the town at large.

Loosening the Straitjacket

In too many cases, the existence of a present street system or a present old house, a present non-conforming business or industrial use, or any type of property which may be creating a neighborhood problem, leads to eventual deterioration of all homes in the neighborhood. People and planning boards everywhere should recognize that buildings can be moved, existing streets can be redesigned, and nuisances can be adequately taken care of if the people in the neighborhood and the officials of the community utilize every tool at their command to provide protection. It is all too obvious that the new subdivision of today can become the slum of 40 years from now if we continue to freeze the new growth in a straitjacket of gridiron streets and typical unimaginative zoning.

In this particular case, neighborhood action did not involve the entire area served by the elementary school. This smaller neighborhood is of a size to permit meetings in the homes in the area. Each factor which affects one house will affect all the others in such an interdependent group. Perhaps the answer to the proper kind of public relations and citizen participation lies in groups of this size, helping to work out the right solutions to their own particular local problems.

In small areas like this, physical separation of too-diverse valuation areas can be as important as the elimination of through traffic. It is believed that by spring, when the streets are actually changed, this one demonstration will lead to demands by many other similar neighborhood groups to give their own area much stricter protection.

Annual Index to Contents 1948

Published separately as a 12-page leaflet, it is available without charge to any subscriber for *The American City* on request.

Two Recent Recreation Books Reviewed

By E. DANA CAULKINS
Superintendent of Recreation
Westchester County Recreation Commission
White Plains, N. Y.

Introduction to Community Recreation*
(Second Edition)

THIS is It—if you can have only one book on community recreation. Probably more than any other book, the first edition of this 568-page publication has been used by community recreation executives, and by official and unofficial planners of community recreation during the last nine years. Although it does not pretend to be a manual of procedure with detailed instructions for the creation of facilities and programs, it seems more than an "introduction" to community recreation. Some other word like "summation" would seem more appropriate. For the most part, the information presented relates to the facilities, services, and programs of municipal, tax-supported agencies, although in general it relates also to those agencies which are supported by private contributions but aim to serve without profit the entire community.

Among the questions answered are:

What is the nature of recreation—and why is it important?

What are the agencies providing community recreation—and how has the development of public responsibility come about?

What are the qualifications for leadership in community recreation—and how are leaders trained and selected?

What is the place of the volunteer in community recreation?

What sorts and sizes of physical areas and facilities are needed for recreation?

How are these areas and facilities operated—and what are the programs they accommodate?

How is the community-wide system of facilities, leadership, and programs organized, administered, and financed?

What are the practices of cooperation with other community organizations which have proved most successful?

National Recreation Association's Experience Used

Answers to the above questions, if comprehensively and accurately given, would seem to carry us far beyond the mere "introduction" to community recreation. The author of this book is in a position to be "comprehensive" and "accurate"—not because he is a superman, and not because he has read all the books and articles relating to community recreation. George Butler has been for many years in a key position on the staff of the National Recreation Association (formerly The Playground and Recreation Association of America), an organization which has been at the front and center of the community recreation movement in the United States for more than forty years. Thousands of field reports from dozens of field representatives, and hundreds of thousands of letters from community recreation workers in all parts of the country have converged at 315 Fourth Avenue, New York, where the author has his office. The first purpose of these reports has been to furnish the organization and its field agents with a reliable basis in practical experience for the dissemination of information and advice on the various problems of community recreation throughout the country. But these reports, sifted and studied by George Butler and others of the National Recreation Association staff, have also furnished the warp and woof from which this book has been constructed.

In dealing with a relatively new and growing form of public service it is inevitable that frequent additions to the record are required. Nine years is not at all too soon for this revised edition, bringing *Introduction to Community Recreation* up to date in the light of new experiences starting before our participation in World War II. The book will continue to be an important text wherever information is sought about what has happened in the development of community recreation in this country, the pitfalls that have been avoided, and some of the guide-posts to success. However, its readers need never expect that this book will do their work and their thinking for them. The genius of community recreation is freedom—freedom for each individual and each community to exercise originality and planning ability in the creation of the local program and the local system of operation. However, *Introduction to Community Recreation* will save the community recreation planner many a hard knock and many a disappointment by pointing out the great variety of paths which lead to success.

Community Organization for Recreation†

HERE is a valuable contribution toward clarifying the emerging pattern of organization of a relatively new form of public service. One essential feature of the pattern is that there must never *be* a hard and fast pattern applicable alike to all communities. But certain fundamental principles show signs of permanence. In the opinion of Mr. Fitzgerald, community recreation is a public service in the sense that a public (tax-supported) authority or agency is an essential part of the community machinery for planning and administering recreation facilities, services, and programs. However, he is most emphatic in stressing that community recreation at its best must include participation in community-wide planning, as well as operation of certain recreation services and programs by privately supported organizations to the end that the entire population may enjoy optimum recreation service. Indeed, the author would expand *Community Organization for Recreation* to include the entrepreneur in commercial recreation as well as private membership clubs of all types.

Mr. Fitzgerald obviously knows the history of the development of community recreation in the United States during the past half century. Moreover, he has evidently given especially close attention to the trends of the past twelve years. Civic leaders and public officials, as well as students of municipal government and social services, will find here an interesting portrayal of what has happened to the development of community recreation throughout this country and Australia, Canada, and England. They will also find well-supported principles and guide-posts to successful procedure in present and future community organization for recreation.

The reader will find here a discussion of the differences between the function of public and private recreation agencies and the various types of organization developed to accomplish community-wide coordination. The discussion is not confined to the local community level but extends also to the county, state, and even to the national level. Particularly interesting is the discussion of community organization for recreation in the State of Minnesota, where the author has had the longest first-hand experience.

The chapter entitled "Schools and Community Organization for Recreation" is clear and constructive and will be very helpful to any reader who is concerned as to how far the public-school organization (with its obviously essential community recreation facilities) should be asked to go in the organization and administration of community-wide recreation programs. Up-to-date discussion is included of some of the new developments in the community recreation program such as hospital recreation, special recreation programs for older people, and public-school camping.

See page 141 of this issue for some other "Selected References on Recreation for Local Officials."

* By George D. Butler. Published by the McGraw-Hill Book Co., Inc. 330 W. 42nd St., New York. 1949. 568 pp. $4.50.

† By Gerald B. Fitzgerald. Published by A. S Barnes and Co., 67 W. 44th St., New York 18, N. Y. 1948. 352 pp. $4.00.

Fort Dodge Goes Deeper for Water

New deep well field developed to allow the shallower field to regain its original capacity

By C. B. PILCHER
Commissioner
Fort Dodge, Iowa

DURING the past ten years water use in Fort Dodge has increased from 650,000,000 gallons per year to 1,250,000,000 gallons. This steady increase has made necessary several extensive expansion projects at the water plant during the past two years. These include reconditioning and equipping with pumps four existing wells, drilling one new well, building an extension onto the filter plant of two 1-mgd filters and one motor-driven, high-service pumping unit.

Of these projects, the extension to the filter plant is now complete. These two new filters each measure 29 feet by 13 feet. They use Wagner underdrains and Transite pipe laterals. For a filter medium they use 18 inches of graded gravel and 33 inches of sand. They have a normal capacity of 1 mgd each at a rate of two gallons per square foot per minute. This rate can be increased, if the need arises, to at least 3 gallons per square foot per minute. The filters use Infilco control equipment with a Type M operating table.

The treatment consists of aeration, sedimentation, and filtration with chlorine added after aeration and a head of sedimentation. The groundwater carries a maximum of 3 ppm of iron and a considerable amount of hydrogen sulphide. The aeration and sedimentation completely remove the iron and hydrogen sulphide. Chlorine residual in the clear well will average .15 of 1 ppm.

Originally, the wells were free-flowing artesian. The combined original natural flow of five wells in 1940 was six mgd. Today the natural flow of the same five

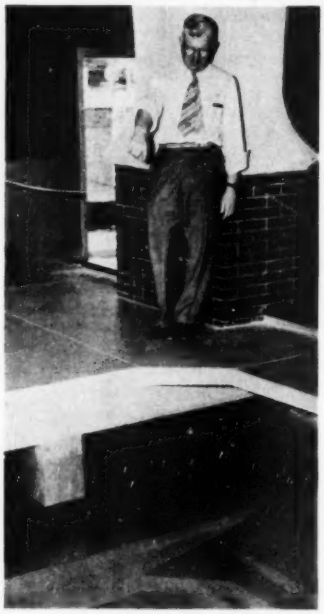


PHOTO COURTESY OF BOB KENYON, "FORT DODGE MESSENGER"

John Pray, Utilities Manager, examines one of the new filter beds.

wells is only 2½ mgd. It has been necessary, therefore, to equip all of these wells with pumps and operate these pumps a considerable portion of the time. Three of the wells are equipped with turbine pumps and one with an air lift, drawing at rates of 6 mgd. The drawdown in the area is from 35 to 40 feet. It is quite evident that this groundwater level will continue to go down if the same amount of water is drawn from the same strata over a long period of time.

It was decided early in 1948 to attempt to augment this supply from a lower level. A deep well is being completed which taps the St. Peter sandstone at 1,499 feet, the Jordan sandstone at 1,800 feet and the Dresbauch sandstone at 2,100 feet. Several heavy charges of dynamite were discharged just above the Jordan sand which has apparently increased the available water from this well a considerable amount. These wells will make available 3 to 4 mgd from depths below 1,000 feet.

New Water Is From Another Source

Waters in the broken limestone formations above 1,000 feet were cased out and the water being produced from the lower levels appears to have no connection with the broken limestone formations from which we are now drawing water. This is determined by heavily pumping this new well and observing the drawdown in the wells which are now being pumped for supply. Also, the chlorides are considerably higher in this new water and the temperature is 9 degrees warmer, so that it is felt that the water from this new well is definitely from another source and that by drawing heavily from this well the existing field will have a chance to recharge itself, and perhaps come back to its original production.

In addition to the improvements mentioned above, three miles of 12-inch, 8-inch, and 6-inch water mains have been laid during 1948, and it is anticipated that more miles will be installed during 1949.

The increase in consumption over the past 10 years is attributed to a large increase in the industrial load, also a considerable increase in the use of air conditioning and about 1,000 new customers, as well as two rather long, dry, hot seasons. With the above improvements installed and ready for operation it is expected that the supply and the plant will be able to meet any demands for the next five years.

The task of developing and operating the Fort Dodge Water Works has been the responsibility of Mr. John W. Pray, manager of all our utilities.

PHOTO COURTESY OF DON PETERSEN

A view of the Fort Dodge Water Works.

U.S. Cities Achieve Broader Home Rule

AT LEAST 646 cities in 16 states now have charters granting them broad powers of municipal self-government, according to a study, "Home Rule for America's Cities," recently published by the American Municipal Association.*

Home rule may be provided either by legislative enactment or by amendment to the state constitution. Twenty-two states have made constitutional provision for home rule, the study reveals, while six others — Florida, Georgia, Iowa, Mississippi, and North and South Carolina — have provided some degree of home rule by statute.

Constitutional home rule has operated exceptionally well in California, Colorado, Oregon, and Texas. The author of the report, Dr. Rodney L. Mott, of Colgate University, notes, "In those states the cities have been given the maximum amount of freedom and almost any city in them could be used as an example of the use of home-rule powers to satisfy public needs."

Michigan has 180 cities and towns with home-rule charters, more than any other state. Oregon has 107, Texas 99, Minnesota 78, and California 57. Other states whose cities have home-rule charters include Arizona, Missouri, Nebraska, New York, Ohio, Oklahoma, Utah, Washington, West Virginia, and Wisconsin.

Home Rule Defined

As defined by the Association's study, home rule is "a relationship between cities and their states in which the cities enjoy fullest authority to determine organization procedures, and powers of their own governments, and a maximum of freedom from control by either the Legislature or state administrative officers." This includes power of cities to change their own charters.

Cities without constitutional home rule are forever at the whim of state legislatures, the author notes, citing recent efforts of the Louisiana legislature to gain control of New Orleans as an example of abuse of legislative power.

In states lacking home rule, the practice of legislatures passing local laws is a burden on the legislature itself. During its 1947 session, the Florida legislature approved 623 laws pertaining to purely local affairs, while in the same year Alabama lawmakers adopted 369 local laws. Maine's legislature passed 11 local laws in its recent session.

Three major constitutional provisions are necessary for cities to have effective home rule, the report declares. These constitutional provisions must:

● 1. *"Protect cities against enactment of special or local laws."* The enactment of laws which are not of state-wide concern or which do not apply to all cities alike must be prohibited. Wisconsin's and New York's constitutions give this protection.

The report states that if it is necessary to permit the enactment of some local laws in order to provide greater flexibility in local government, no such law should take effect until approved by the city concerned. This provision is made in the constitutions of New York and Illinois.

● 2. *"Grant cities authority to frame their own charters."* This authority should be given in terms that enable cities to put new charters into effect without action of the state legislature. The grant of charter-making power should also authorize cities to amend their existing charters as well as to frame new ones.

● 3. *"Give cities powers broad enough for them to provide maximum services for their citizens."* This may be accomplished, the report states, by granting broad general powers to municipalities on matters of local concern, or by enumerating municipal powers specifically. In case the latter action is taken, the courts should be instructed to interpret these powers broadly.

Wisconsin found it desirable to give its cities broad grants of general power covering all their local affairs and government. In Colorado, specific power is conferred on the cities by the constitution, but the courts are given clear instructions to interpret these powers broadly and not to construe them to deny other powers not expressly granted to cities.

As an alternative to the constitutional provisions set forth as essential to effective home rule for cities, the study suggests a system of local federalism. This would involve a declaration that the residual powers of government rest with the cities and that the state has only such powers as are delegated to it.

Such an arrangement would place city and state relations on a basis comparable to those of the states and national government. Under such a plan, according to the report, states should be empowered to handle situations which involve more than one unit of local government.

Related issues that may facilitate the adoption and operation of self-government also are cited in the report. Among them are the following:

● Home rule should not be confined to large cities, but should be available to all having a population over 5,000, at the very least.

● Constitutional mandates should be used to help reduce conflicts between home-rule cities and states over division of tax source, control of local courts and authority to regulate.

● Further, cities should be protected against burdens imposed by the state such as contributing to state expenses or supporting state services.

* *Home Rule for America's Cities*, by Rodney L. Mott, Ph.D., American Municipal Association, 1313 E. 60th St., Chicago 37, Ill. 1949. 68 pp. $1.50.

How Much Does Power Cost?

A comparison of residential rates charged for electricity. This table appears in the Ninth Edition of the Electric Rate Book, published by Burns & McDonnell Engineering Company of Kansas City, Mo.

	CITY	COST IN DOLLARS K.W.H. MIN.	25	40	100	250	500	AVERAGE ANNUAL KWH PER CONSUMER (FROM 1946-47 REPORTS)	AVERAGE REVENUE PER KWH
1	AUSTIN, TEX.	.80	1.25	1.70	3.30	8.30	10.20	1063	3.17¢
2	CHATTANOOGA, TENN.	.75	.75	1.20	2.50	5.00	6.90	3388	1.45
3	CLEVELAND, OHIO	.60	.60	1.19	2.65	5.40	9.15	1179	2.55
4	COLUMBUS, OHIO	.90	.98	1.50	3.40	6.25	10.00	1213	3.28
5	FORT WAYNE, IND.	.50	.81	1.30	2.75	5.40	7.55	1773	2.29
6	GLENDALE, CALIF.	.60	1.00	1.42	2.50	4.50	6.25	1444	2.17
7	HAMILTON, OHIO	.50	.75	1.20	2.62	5.25	7.75	1190	2.43
8	HOLYOKE, MASS.	.50	1.00	1.60	3.75	6.75	14.25	1308	3.32
9	JACKSONVILLE, FLA.	.50	1.50	2.35	4.60	7.60	11.60	1961	3.29
10	KALAMAZOO, MICH.	1.00	1.00	1.60	3.00	5.75	8.50	2084	2.32
11	KANSAS CITY, KANS.	.75	1.30	1.60	2.80	4.95	7.20	1383	2.61
12	KNOXVILLE, TENN.	.75	.75	1.20	2.50	5.00	6.90	3061	1.51
13	LANSING, MICH.	.40	.70	1.12	2.40	4.90	6.90	2030	2.05
14	LINCOLN, NEB.	.55	.98	1.42	2.45	4.40	7.40	1186	2.29
15	LOS ANGELES, CALIF.	.30	1.00	1.42	2.77	4.90	6.65	1450	2.34
16	MEMPHIS, TENN.	.75	.75	1.20	2.50	5.00	6.90	1448	2.16
17	NASHVILLE, TENN.	.75	.75	1.20	2.50	5.00	6.90	3136	1.90
18	OMAHA, NEB.	.50	1.02	1.62	3.64	7.42	9.92	1398	3.24
19	PASADENA, CALIF.	.50	1.13	1.80	3.00	5.25	6.00	1501	2.89
20	SACRAMENTO, CALIF.	.90	1.23	1.66	2.98	5.28	7.78	1734*	2.60
21	SAN ANTONIO, TEX.	.90	1.25	1.90	3.64	6.26	10.64	966	3.76
22	SEATTLE, WASH.	.75	.80	1.28	2.72	5.10	5.70	4100	1.38
23	SPRINGFIELD, ILL.	.50	1.25	1.90	3.02	4.60	6.75	2151	2.01
24	SPRINGFIELD, MO.	.75	.75	1.20	3.00	6.00	10.00	1043	2.77
25	TACOMA, WASH.	.90	.95	1.10	1.70	3.20	5.30	4771	1.02
	AVERAGE OF THE 25 CITIES	.59	.98	1.47	2.83	4.98	8.12	1926	2.40
	# NATIONAL RESIDENTIAL AVERAGE KILOWATT HOURS PER CUSTOMER							1435	3.08

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KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

The sewage-treatment plant at Glens Falls, N. Y.

Sewage-Plant Instruments—

What They Can Do

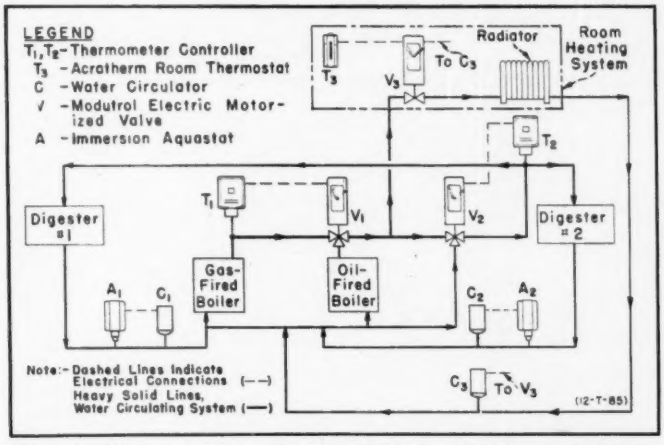
By A. O. PEARSON
The Brown Instrument Co.
Philadelphia, Pa.

WITH increasing public demands for thorough and adequate sewage treatment, the role of modern instrumentation and control is assuming important proportions. Just as automatic process control, together with the recorded data from chart records, has helped increase the efficiency of industrial production, so it is aiding sewage-plant engineers to increase the over-all efficiency of their plants. The precise measurement and control of such factors as flow, temperature, liquid level, pH, and pressure yields large dividends in the conservation of fuel, time, and material.

Several sewage-disposal plants in the upstate New York area show the operating benefits of good instruments. These plants are located at Rotterdam, Hudson Falls, Scotia, and Glens Falls.

As in the Rotterdam plant, the recording instruments can be grouped together at some convenient location. Charts on these instruments are changed every 24 hours. The recorded charts are identified by penciled notation, dated, and filed for future reference.

In many plants an oil-fired boiler is operated in parallel with a gas-fired unit, as in the Glens Falls plant. This is done to insure an adequate supply of hot water for the digesters, building radiators, drying beds, and similar equipment. Many control options are available for such a hot-water system. However, that shown on the accompanying schematic diagram is typical.



Water-circulating control system for a combined oil- and sludge-gas-fired boiler.

Heating Water Controls

Referring to the schematic diagram, *T1* is a Honeywell temperature controller (graduated 105-220° F.) which controls an *M-H* mixing valve *V1* installed in the header of both boilers. In normal operation, 180° F. water is supplied to the system by the gas boiler, but if this boiler fails at any time to have sufficient capacity for the system, the valve admits 180° F. water from the oil-fired boiler in direct proportion to the system's needs.

A second temperature controller, *T2* (graduated 105-220° F. or 65-140° F.) operates mixing valve *V2*. The function of this arrangement is to temper hot supply water with the return water from the digesters. This enables the feed water to the digesters to be automatically maintained at 130° F., thus assuring optimum digester operation.

Room temperature is controlled by an Acratherm thermostat which governs the action of hot water control valve *V3*. An auxiliary switch on this valve causes the circulator *C3*, to operate when the valve is open.

Circulators, *C1* and *C2*, are controlled by Aquastats *A1* and *A2*. When the temperature of the return water from either digester rises to 110° F. the corresponding Aquastat de-energizes the

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circulator motor. In this way, the circulator stops and thereby prevents overheating of the sludge.

Insofar as the kind of plant considered in this article is concerned, the major factor governing disposal-plant efficiency is digester operation. Since the temperature of the digester, and also that of the heating water, affect the efficiency of the digestion process and the operation of the digester, it is extremely important that these temperatures be measured and recorded. Generally, a three-pen recording thermometer is employed, similar to the one being examined by the Hudson Falls Plant Superintendent in the photograph at the right.

As shown in the accompanying schematic diagram, the three-pen recording thermometer measures the temperature at three important points. The input water temperature should continuously measure 130° F. to maintain a digester temperature in the nineties. Since the digester temperature directly affects the length of time required for digestion, these measurements are very important. It is also imperative that the input water temperature does not appreciably exceed 130° F. Otherwise, incrustation will form on the heating coils in the digester.

Level Measurements

By measuring the return water from the digester, an evaluation of the temperature difference between input and output water is provided. This measurement indicates how well heat is being absorbed and thus constitutes a continuously recorded check on digester efficiency. In time, it may indicate incrustation on the inner or outer surfaces of heating coils by revealing a lapse in digester efficiency.

The diaphragm-type liquid-level gauge shown in the illustration is diagramatically portrayed in the schematic diagram. With this arrangement, a continuous record or indication of the level in the associated digester is available: information as to which digester can receive more sludge, and how much, is readily perceived. In many cases, the value of the arrangement has been enhanced by the addition of control contacts. These are used to actuate some form of signaling device which announces that the level has deviated beyond the permissible maximum or minimum limits.

The one-connection arrangement illustrated can be used with open digesters or with closed digesters provided the slight inaccuracies resulting from the additional head pressure atop the liquid (which is produced by gas accumulation) are disregarded. Where the additional head resulting from gas pressure *cannot* be disregarded, a differential-type meter must be employed. Such

Superintendent at Hudson Falls disposal plant removing chart from three-pen recording thermometer. The instrument measures sludge temperature in the digester; input water to digester, and return water from the digester. On the left can be seen the diaphragm-type liquid-level-gauge indicator which shows sludge level in digester tank.

a meter is connected to diaphragm boxes at both the top and bottom of the digester.

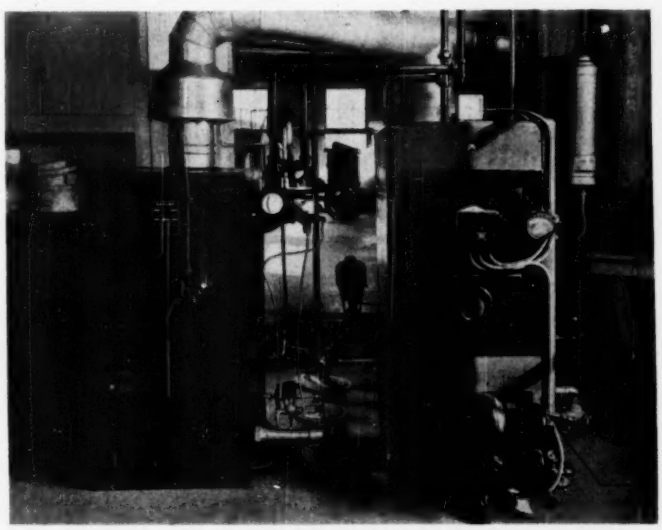
Flow Measurement and Recording

Increased plant efficiency through resulting economies in digester operation is obtained through the use of heating water flow records. A recording and integrating flow meter installed as shown in the schematic diagram provides a constant check on the circulation rate of hot water to the digesters. In a closed system, this is especially important since an unnecessarily high flow rate adds to the heating costs. In general, the larger the plant, the more important this factor becomes, although economies will result when only the main hot-water line on each digester is metered.

In like manner, recording and integrating the digester-gas flow provides a continuous indication of efficiency by an evaluation of the rate at which gasification is taking place. In addition, for accounting purposes, the record shows how much gas has been produced by the digester. In the event an orifice plate, or the venturi tube shown, introduces prohibitive losses, a digester-gas-blower motor and tachometer generator in conjunction with an Electronik recorder is often preferred.

In addition, some plants include recording flow meters for measuring the flow of incoming sewage, raw sludge to the digestion tanks, and digested sludge from the plants. This, however, is arbitrary. In most cases, the total number of meters employed is a matter of specific plant policy.

Since the digestion of sludge is a complete process, which is affected by many variables, adequate instrumentation and control is a key factor in efficient plant operation. The plants herein described have increased their efficiency by instrumenting to suit their needs. Digester temperatures are assured by the automatic water-temperature-control system described. Plant operation is further expedited by measuring and recording instruments at critical points. It should be borne in mind that many ramifications in both the control and measuring instruments exist. However, the basic control system and measuring instruments described are applicable to any treatment plant of a similar type, large or small.



An interior view of Glens Falls treatment plant, showing typical gas- and oil-firing arrangements for boilers. Note the circulator, oil and gas controls.

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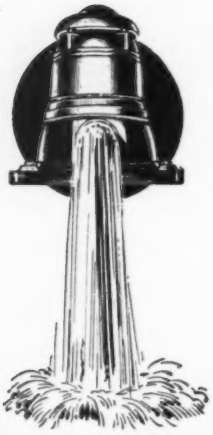

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NEWTON, KANS.

Business District Gets New Refuse-Collection Rates

How one city put this service on an equitable basis

By FRANK LAWLER
Administrative Aide
City Manager's Office

ONE of the problems which confronted the City of Newton, Kans., in 1948 was how to put its refuse-collection service for the business district on a self-supporting basis. As the system had been operating, it was necessary to subsidize the revenue from service charges with revenue from other sources. Furthermore, the old system's charges gave evidence of glaring inequalities in the business district.

A new, fairer system of charges was made possible primarily through two factors: *first*, the foundation was established by surveying the business district and by collecting and assembling facts on refuse collection from other cities of similar size; *second*, the public was informed of existing inequalities and of the merits of the amending schedule.

Many Merchants Not Charged

In Newton, the charge for refuse service is entered on the water-utility bill, which is issued quarterly to the person in whose name the water meter is registered. Not every business unit has its individual meter. Therefore, in buildings with more than one concern, these multiple units were all receiving refuse service for the same price as the single units.

The next step was to calculate the operating cost in the business district. City Manager Gerald Wilkins established seven general categories of pick-ups according to the time required per pickup. To these categories was to be added the operating cost.

How the Costs were Calculated

Under the old system, the only basis for charges had been the measure of 6 cubic feet of refuse. In actuality there were no means of determining this quantity; therefore, the basis was of little if any consequence.

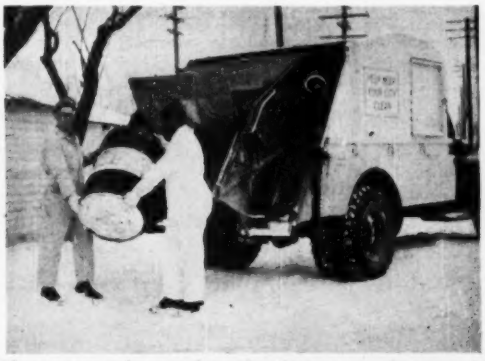
In computing the operating costs for the new schedule of charges the following factors were given consideration: (1) wages for three men at 90 cents per hour, working an average of 208 hours per month; (2) operating costs of the truck—fuel, oil, tires, repairs, and liability insurance; (3) equipment-replacement costs, and (4) the cost of workmen's compensation. The net result was an operating cost per hour of $3.85, or 6.4 cents per minute. This, of course, was the minimum cost to the city, and every possible consideration was given for putting it on a non-profit basis. (See box for new schedule of charges and the seven categories established by City Manager Gerald Wilkins.)

Next, it was necessary to determine the average time consumed in the business district for each refuse pick-up. To do this the foreman of the sanitation department, Frank White, followed his crew through its route making time-study notations at each stop. On a later date the writer made another survey of the pick-up times. The two days selected represented as nearly as possible a heavy and a light pick-up day. From these the average time was used in calculating the new charge. This was simply the average time multiplied by the 6.4 cents-per-minute operating cost.

With each merchant's charge computed, City Manager Wilkins prepared a two-page mimeographed letter to explain the new charge to the business man and to notify him of his new service charge.

Before the letters were mailed, however, the public relations part of the program was initiated. Fortunately, the city administration enjoys an exceedingly cooperative working relationship with the local newspaper. Consequently, on two consecutive days prior to mailing the letter, the newspaper laid the groundwork by informing the public of the proposed schedule. The first newspaper article was an 8-inch column ex-

Stake-body trucks are also used. This 1½-ton Dodge truck is used in the downtown area owing to the abundance of paper boxes and similar rubbish. The task of dragging out small lots of trash is greatly facilitated by the use of the wire-framed canvas baskets.



Three men work on each truck. One man works on each side of the alley, and the driver helps them with the heavy loading. This truck is a Ford, equipped with mud-grip tires and carrying a Gar Wood Load-Packer body. Trash and garbage are collected together.

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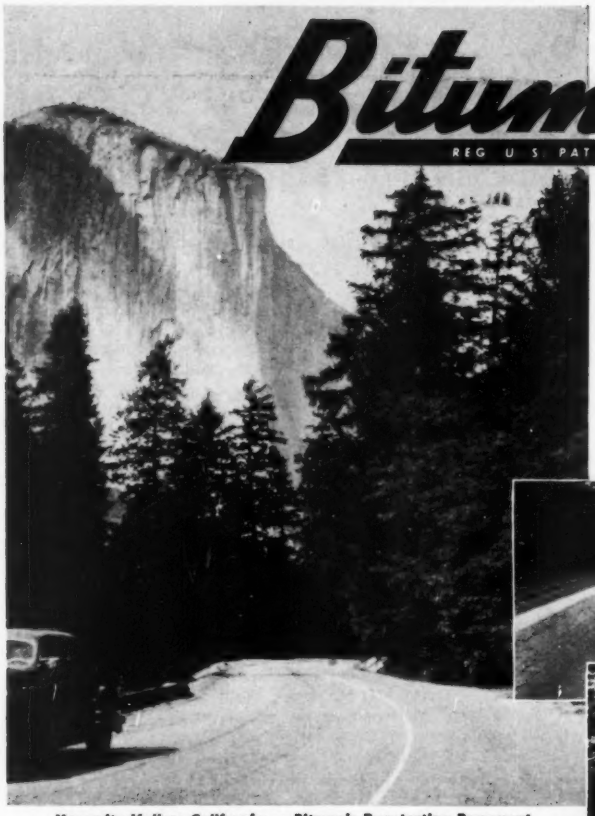
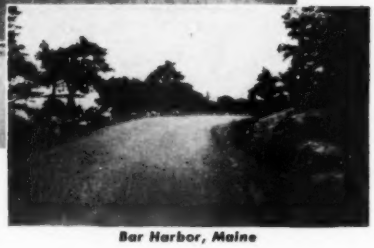


Yosemite Valley, California — Bitumuls Penetration Pavement

Maryland Test Road



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plaining the inequalities of the old system and emphasizing the need for a revised system. The article further explained that the city administration was preparing to send to each merchant information on the new schedule of charges for the business district.

The following day the editor of the daily paper further strengthened the city's case with a very stimulating editorial. Primarily the editorial played upon the theme that "everyone should bear a fair and equitable portion of this important public-service charge."

Letter to Merchants

That same evening the mimeographed letters were put in the mail to notify each meter registrant of the new charge which would go into effect on January 1, 1949. The letter emphasized that there would be a week's time following receipt of the letter. In this period, the merchants were invited to appear at the city office for verification or readjustment of the new charge.

During the interim period between notification and actual assignment of the new charge only six businessmen appeared at the city office to discuss their new charge. Of the six only two complained of its being excessive.

Merchants Cooperative

On the other hand, there were numerous gratifying comments from businessmen who strongly favored the new, more equitable schedule. Some took the time to write Manager Wilkins commending the step. One had his letter published in the daily newspaper.

The following statistics indicate what can be expected from the new business-district rate schedule:

Annual revenue, old schedule	$2,430.00
Annual revenue, new schedule	6,505.20
Annual increase	4,075.20

As mentioned previously, Manager Wilkins established seven general categories of business with charges per quarter ranging as listed below:

1. Groceries	$5.00–$30.00
2. Drug stores	5.00– 15.00
3. Hotels, hospitals, schools, and multiple apartments	5.00– 30.00
4. Hardware, implement and supply stores	5.00– 15.00
5. Cafés, confectioneries, and beer halls	5.00– 20.00
6. Ready-to-wear, department, and furniture stores	5.00– 30.00
7. Miscellaneous and multiple businesses (multiples included any two or more businesses on the same water meter)	5.00– 30.00

In the letter notifying the merchant of his new charge, the figure quoted was the charge for one month, or one-third the figure which he would have on his quarterly water bill for refuse service.

This letter was sent to each merchant to explain the new refuse program.

Newton, Kans.
November 1948

Dear (Merchant's name supplied):

The following information presents the city's financial problem in providing the trash and garbage collection service, explains the procedure adopted to handle the problem, and states the charges for your service. Please read this information carefully.

The entire matter has been discussed with the Retail Merchants Division of the Chamber of Commerce so that they are acquainted with the problem.

1. The Problem
   a. The Sanitation Department of the City of Newton incurred a financial deficit of $1,639.22 during its first five months of operation in 1948. This means that the actual income from service charges was $1,639.22 less than the cost of providing the service.
   b. Some business houses are paying a reasonable amount for the service but many are paying much less than it requires to provide the service.
   c. The income from service charges not only is inadequate for day-to-day operation but provides no funds at all for equipment replacement.
   d. The problem is primarily in the business district; the residential district is paying more nearly the cost of the service they receive.
2. The Solution
   a. New rates for garbage and trash collection service in the business district based on a rate schedule adopted by the City Commission. This rate schedule is based on the actual cost of providing the service and the charge made will take into account the time necessary to make the collection, and the type and quantity of the refuse collected.
   b. After carefully analyzing the cost of providing the service, we find that it costs a minimum of $3.85 an hour to operate. This cost includes the wages of three men, operating costs of the truck, depreciation, workmen's compensation, and truck insurance.

3. The New Rate Schedule

Type of Load	*Time For Pick-up*	*Cost Per Minute*	*No. Pick-ups Per Week*	*Cost of Service for 3 Months*
Extra light	1 min.	6.4c	6	$ 5.00
Extra light	1 min.	6.4c	2	1.80
Medium light	2 min.	6.4c	6	10.00
Medium light	2 min.	6.4c	2	3.60
Light	3 min.	6.4c	6	15.00
Light	3 min.	6.4c	2	5.40
Medium	4 min.	6.4c	6	20.00
Medium	4 min.	6.4c	2	7.20
Medium heavy	5 min.	6.4c	6	25.00
Medium heavy	5 min.	6.4c	2	9.00
Heavy	6 min.	6.4c	6	30.00
Heavy	6 min.	6.4c	2	10.80
Extra heavy	7 min.	6.4c	6	35.00
Extra heavy	7 min.	6.4c	2	12.60

Note:
6 pick-ups a week equal 26 a month, or 78 each 3 months
2 pick-ups a week equal 9 a month, or 28 each 3 months

An additional charge, to that provided above, shall be made for any unusual or excessive amount of trash or garbage removed; such additional charge shall be based on the cost of providing such service and collected as other charges.

4. Procedure
   a. Each merchant will be notified of the amount which will be chaged to him for the service beginning January 1, 1949. (Note paragraph 7). This charge is based on the actual cost of providing this service to the individual merchant by the city. In computing the charge the following are given consideration: the time it takes to make the collection (note rate schedule), the type of refuse, and the quantity of refuse. The charges may be adjusted from time to time as the above factors change.
   b. The charges assessed each merchant have been carefully considered so that they are based on the cost of the service rendered. The city is not operating the service for profit. If you wish further information or wish to discuss the charges assessed you, please see Frank Lawler at the City Hall before Dec. 1, 1948.
   c. The charges for refuse-collection service will be billed on the water statement card as in the past. If you have tenants on your water meter it is your responsibility to collect from them their proportionate share of the refuse-removal charge. If the city had to bill each tenant separately it would mean a great deal of extra bookkeeping and thus a further increase in charges.

(*Continued on page* 165)

Engineering Facts about

Johns-Manville TRANSITE PRESSURE PIPE

The Inyokern Earthquake

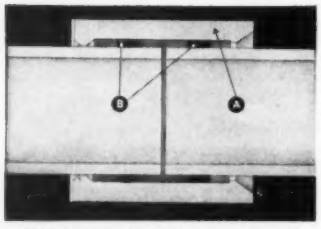
WATER LINES are seldom required to withstand a test as severe as that to which a Transite* asbestos-cement Pipe installation was subjected at Inyokern, California, about two years ago. The Transite installation at Inyokern consists of over 300,000 feet of pipe and comprises the major portion of the water supply system for the vast Naval Ordnance Test Station located there.

During the early part of 1946, an earthquake of maximum intensity occurred in the Inyokern aren. Shocks of great severity were felt throughout the immediate locality in which the Transite line was laid. Naturally, concern was felt at the Naval establishment for the safety of its water supply.

After the quake had subsided, crews were dispatched to repair whatever damage the lines might have suffered. A thorough search failed to reveal a single break or any evidence of leakage at any one of the 25,000 joints in the system. Subsequent careful check of pressures and measurement of water levels confirmed that the lines had remained intact.

This aerial view shows a portion of the Naval Ordnance Test Station at Inyokern, California.

The reason this Transite installation was able to withstand this severe test is found in the inherent strength of the pipe and in the design of its Simplex Coupling, the standard coupling for Transite Pressure Pipe. Each of these couplings is a tight yet flexible link connecting one section of pipe to another and imparting to the line as a whole a degree of flexibility which enables it to "roll with the punch." Thus, shocks and vibrations are absorbed, stresses minimized to an unusual degree.



This cutaway sketch shows construction of the Simplex Coupling used with Transite Pressure Pipe. It consists of Transite sleeve "A" and two rubber rings "B" which are tightly compressed between sleeve and pipe as the coupling is assembled.

A factory-made joint which requires only assembly on the job, the Simplex Coupling derives its flexibility from its simple design. Consisting of a Transite sleeve and two rubber rings tightly compressed between pipe and sleeve, its simplicity and ease of assembly are apparent from the accompanying illustration. Moreover, this coupling is readily checked for proper assembly as the line is laid—further assurance of tightness in each individual joint and in the line as a whole.

Probably your water lines will never be called upon to absorb punishment as severe as the Transite lines at Inyokern. But the same engineering advances which protected this Transite installation can be depended on to safeguard equally well against the stresses normally encountered in water line service.

For further information about Transite Pressure Pipe, write Johns-Manville, Box 290, New York 16, N. Y.

JOHNS-MANVILLE JM PRODUCTS

*Transite is a registered Johns-Manville Trade Mark

De Queen, Ark., Wins Fight Against Mosquitoes

THE people of De Queen, Ark., have discovered the secret of mosquito-less summers. At a cost of 25 cents per home per month, the residents have availed themselves of the right to sit on their lawns without being bothered by the sharp-billed pests.

Situated in the heart of the malaria-ridden South, De Queen is in the middle of damp puddle-strewn lowlands, a natural breeding ground for mosquitoes. For 25 years, the citizens have fought the perils of malaria and its transmitter, the Anopheles mosquito.

Malaria, though it seldom kills, brings decadence and poverty to an area, and costs an estimated $40 per person for medical treatment and lost working time. But the big cost is in lowered standards.

Combatting mosquitoes in De Queen costs slightly more than $850 annually, the major expense being labor during a three-month period in late spring and early summer.

Two men start the program with only one man remaining on the job beyond the end of the first month. One man sprays all ponds, puddles and slow-running streams in the city and in an area extending one mile beyond the city limits. The second man makes a canvass of the entire area, cleaning out drainage ditches and chopping weeds away from the edges of water holes. Unskilled labor is all that is required for either operation.

Working on a regular weekly cycle, the operation manager sprays water holes on one round and checks the population of adult mosquitoes on the second and the population of larvae on another. The adult population is tabulated at "catch" stations at the edges of the area. ("Catch" stations generally consist of vacant sheds, outdoor toilets and other undisturbed structures in which mosquitoes can hide. One station per square mile of treatment-area has been advised.)

Larvae population is checked by "dip" tests made in sprayed pools with a long-handled screen-wire dipper.

A simple 5-gallon hand-sprayer of the type carried on the back of the operator is used to treat water holes. The following larvacide, recommended by the U. S. Public Health Service, was used:

50 gallons diesel fuel No. 2
1½ gallons 25% DDT concentrate
1 pint B1956 Treton emulsifying agent

The only trouble that the mosquito campaign promoters found was through their thoroughness. By the end of the second month, contributors declined to donate their monthly 25 cents. There were no longer any mosquitoes to be eradicated, they contended.

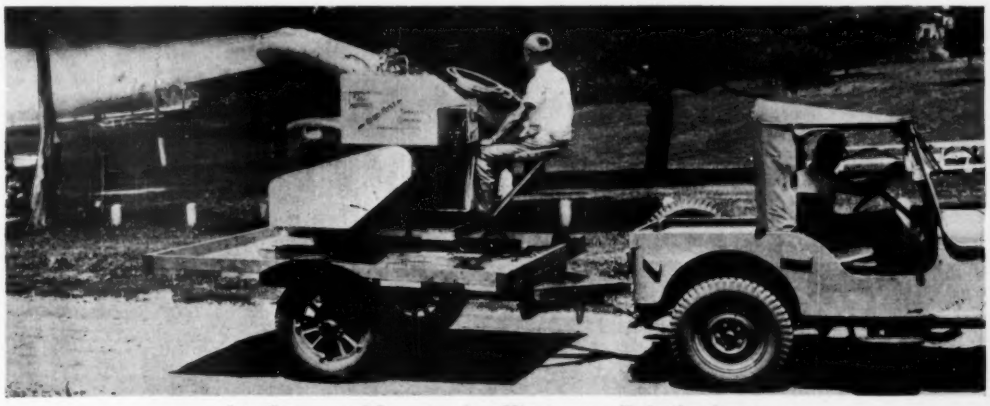
Battle Glimpses From the Insect War

BIG sprayers of the type shown here were rushed to the West Coast by the Lawrence Aero-Mist Sprayer Company, Greenfield, Mass., at the request of public-health officials in the river-valley sections of Washington devastated in last spring's flash floods. At about the same time, another was shipped by air freight to Des Moines, Iowa, to be used against flies and mosquitoes in connection with a fight against polio.

Mist-sprayers blanket with insecticides any area accessible to a truck or trailer, eliminating flies, mosquitoes, ticks, and many varieties of moths, spiders and beetles. Liquid insecticide is injected into the center of a stream of air driven through the sprayer nozzle at hurricane velocities by a large blower. Broken up into fine particles and carried by the blast of air, the insecticide settles slowly over the entire area in an even coating that sinks into cracks and crevices. The Lawrence sprayer has a turret-like mounting that enables the operator to turn the unit in a complete circle and a direction nozzle that rotates the full 360 degrees.

A mist sprayer based at Little Rock, Ark., has been one of the main anti-malaria weapons of the United States Public Health Service in that area. Other units directed from USPHS headquarters in Atlanta, Ga., have been successfully employed as far west as Albuquerque, New Mexico, and western Texas in curtailing dysentery.

In the northeastern states, Virginia to Maine and as far west as Chicago, the sprayers have been adopted by many municipal agencies and commercial firms as a means of ending the insect nuisance. Beaches, golf courses, resorts and other establishments catering to vacationists have found that an easy way to keep their customers contented is to do away with flies and mosquitoes.



A trailer-mounted Lawrence Aero-Mist sprayer eliminating insects.

More for Your Money with an AMERICAN No. 8

Here's the AMERICAN No. 8—the economical answer to all your road maintenance problems. The No. 8 is a hydraulic motor grader that will not only maintain your streets and highways, but will handle many jobs that usually require specialized equipment. Jobs such as material handling, snow removal, loading and bulldozing are all quickly and efficiently done with this all-purpose machine.

Your initial investment in the AMERICAN No. 8 is much lower because the savings of IHC special built industrial tractors are passed on to you. Maintenance and repair costs are much less because the AMERICAN No. 8 has few wearing parts.

Get more for your money . . . get the AMERICAN No. 8. See your dealer or write American-Coleman Company for complete information today.

Cuts 2 and 3-foot ditches with ease.

This Hi-Lift and other loaders handle all loose materials.

There's A COLEMAN 4-Wheel Drive Truck for Every Job

Power! Stamina! Strength! You'll find them all in this mighty COLEMAN 4-Wheel Drive truck. COLEMAN is available with all types of trucks shovels, hydraulic dump and heavy-service bodies, V-type and rotary snow plows, one-way blades, or snow scoops.

COLEMAN delivers extra performance on those heavy duty "off-the-road" hauling jobs in oil fields, mining, logging and road construction where steep grades are common.

Make your next truck a COLEMAN. Write for complete information today.

CONVERT YOUR PRESENT TRUCKS TO 4-WHEEL DRIVES WITH COLEMAN

Any Standard Ford, Chevrolet, Dodge, IHC, GMC (300 series) truck can be converted to 4-Wheel Drive easily and quickly with a COLEMAN CONVERSION UNIT. This low-cost unit can give heavy-duty 4-Wheel power to these trucks. Makes it possible to haul bigger pay loads up steeper grades under all conditions. Write us today for further information.

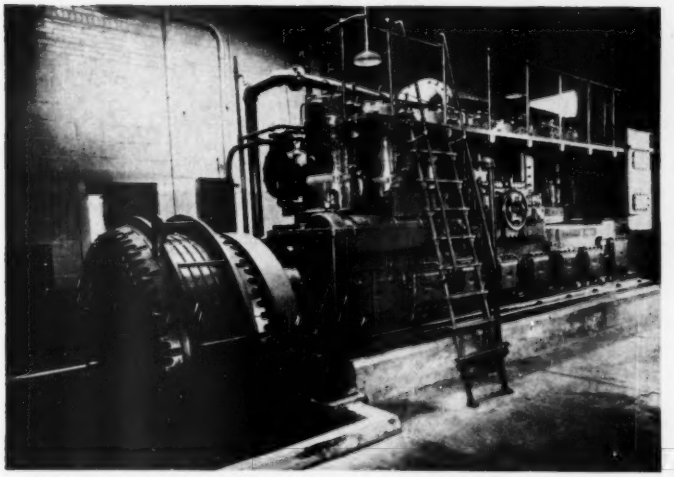
The American-Coleman Co
OMAHA, NEBR.

- RUGGED
- POWERFUL
- DEPENDABLE

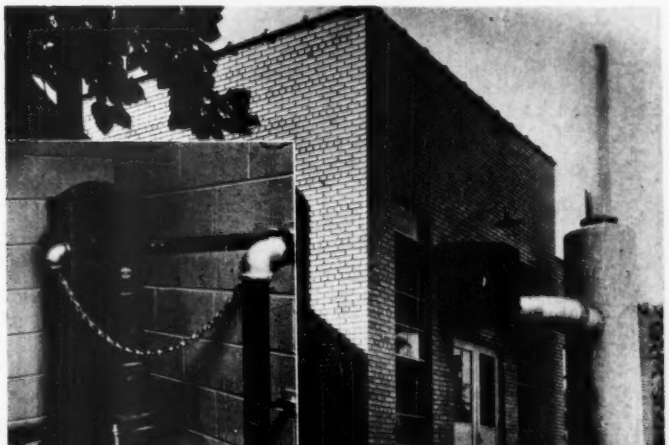
Inflation and Diesel Electric Profits

SABINA, OHIO, ANSWERS THE QUESTION

By J. C. PHELPS
Plant Superintendent
Sabina, Ohio



Installed at the Sabina plant in 1948—this 805-hp diesel engine generator.



All Sabina's diesels are served by Hoñan-Crane activated clay lube-oil purifiers. This unit (see inset) was installed in 1948 to handle oil for the 805-hp engine. A new brick wing was constructed to house the new engine. Intake air is drawn through American air filters while exhaust gases vent through a Burgess snubber.

LIKE every other enterprise, the municipal power plant has had to cope with rising costs. The privately owned utility presents its case to the state authorities for higher rates to insure the guaranteed margin. But in the case of the municipal plant, the citizens who pay the light bills are also the owners of the utility and feel that the managers of their plant should exhaust every possible alternative before raising rates. Actually, the maintenance of previous rate schedules, while the dollar declines in value, amounts to a reduction of electric rates.

Sabina, Ohio, is an excellent example of a community that has managed to retain existing rates to consumers, increase consumption of electricity, maintain plant operating efficiency, and actually increase net profits. The year 1947, the latest complete year for which figures are available at this writing, set a number of important records for Sabina's diesel power plant; total revenue was $49,157, the highest in the plant's half-century career; net operating income reached a peak of $17,857; kilowatt hours produced attained the high of 1,767,200; and kilowatt hours per gallon of fuel consumed edged up to an excellent 12.78.

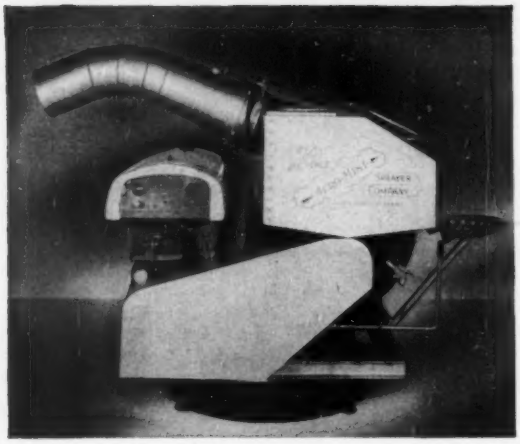
Sabina installed its first diesel in 1937 to augment a two-engine steam plant. This first internal combustion engine, a 300-hp Model 32-E-14 Fairbanks-Morse diesel, reduced the city's fuel costs drastically and paved the way for the complete dieselization of the plant in 1940. At that time, the steam equipment was removed and two additional Model 32-E-14 F-M diesels were installed, one rated at 150 hp and the other at 450 hp. This provided a flexible power supply double the existing peak load.

With diesels carrying the entire load, Sabina put aside $7,200 a year for interest and a bond-retirement fund, and in addition, by 1947, had amassed $55,000 more, bringing plant profits for the period to nearly $113,000. The $55,000 was carried as a balance in the light fund, and was paid as cash on the engine installed in 1948.

The battle to keep revenues ahead of rising costs was more than usually difficult for Sabina, since more than half the kw-hrs. sold go to industrial consumers who pay as low as 1.75 cents per kw-hr. To balance this low-rate load, Sabina has sought to increase consumption by domestic and commer-

For Every Spraying Program . . .

All-Purpose LAWRENCE



AERO-MIST SPRAYERS

The New, Improved L-80 AERO-MIST Sprayer

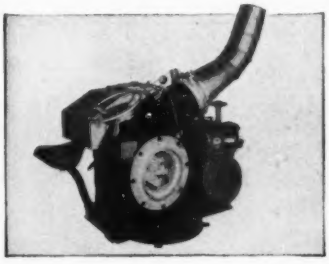
In this one fast, easy-to-operate sprayer is the modern means of pest, disease, and weed control! Unequalled in performance, the Lawrence L-80 Aero-Mist Sprayer handles *all* types of insecticides, fungicides, and weedicides . . . protects public health and comfort by helping to control flies and mosquitoes . . . gets at all leaf-eating insects, weeds, and plant diseases . . . thoroughly covers the tallest trees and lowest crops—and has the lowest operating costs in labor and materials.

FORD ENGINES

These heavy-duty sprayers now have dependable rugged Ford engines. Ford dealers are everywhere, with the facilities for keeping the engine right on the job.

L-40 MODEL FILLS NEEDS FOR LIGHT, POWERFUL MIST SPRAYER

When the spraying program is not large enough for the efficient operation of the L-80 heavy duty mist sprayer, the 700 pound compact Lawrence L-40 Aero-Mist Sprayer is the ideal unit. The L-40 can be operated from the back of a pick-up truck or trailer . . . and the operator can aim the directional air nozzle in any direction.



THE LAWRENCE AERO-MIST SPRAYER CO.

"LAWRENCE"
The Name To Remember in Mist Sprayers

To: The Lawrence Aero-Mist Sprayer Co.
588 Federal St., Greenfield, Mass.

Please send me complete details on the

☐ L-80 heavy duty Lawrence Aero-Mist Sprayer
☐ L-40 light-weight Lawrence Aero-Mist Sprayer

Name .....
Address .....
City & State .....

cial users. The home-lighting rate is 5 cents per kw-hr. for the first 100, and 4 cents for all over that quantity. A combined lighting and heating rate starts at 5 cents for the first 100, and 2.5 cents for all over 200. Here are the comparative consumption figures for 1943 and 1947:

	Residential	*Commercial*	*Industrial*
1943	260,907	161,698	544,663
1947	369,417	299,709	664,021

In addition there were small sales to rural customers and substantial contributions of free power for street lighting and other civic purposes. Happily for Sabina's balance sheet, the higher-rate residential and commercial users boosted consumption 246,521 kw-hrs. while lower-rate industrial firms increased purchases by 119,358 kw-hrs.

Increasing power consumption meant increasing peak loads, and by 1946 it was necessary to run all three engines to carry the peaks. The town's heavy-duty diesels handled the load without failure, but obviously it was advisable to provide reserve generating capacity. Consequently, in 1948, the city installed an 805-hp, Model 33-E-14 Fairbanks-Morse diesel direct-connected to a 556-kw, 3-phase, 60-cycle, 2,400-volt F-M alternator. Again Sabina has capacity double its 550-kw peak load. This latest plant expansion cost approximately $125,000, but Sabina was in a position to make a sizeable cash payment, leaving only $84,000 in outstanding revenue bonds, the total indebtedness of the plant. On September 1, 1948, the plant had a balance of $26,127 in the light fund and $5,574 in the bond-retirement fund, making a total of $31,701. Actual net liabilities amount to only $52,298.

PRINCIPAL EQUIPMENT

Engines: One 150-hp, one 300-hp, one 450-hp, one 805-hp. Diesels. Fairbanks, Morse & Co.

Generators: One 97-kw, one 200-kw, one 300-kw, one 556-kw, 3-phase, 60-cycle, 2,400-volt alternators. Fairbanks, Morse & Co.

Governors: Type IC, Woodward Governor Co.

Cooling Water Pumps: Two 1½-inch, one 2-inch, one 3-inch; motor-driven centrifugals. Fairbanks, Morse & Co.

Evaporative Coolers: Fairbanks, Morse & Co.

Lubricating Oil: Texaco Algol, The Texas Co.; Standard XX, Standard Oil Co.

Lube Purifiers: Honan Crane Corp.

Lube Filters: Wm. W. Nugent & Co.; Purolator Products, Inc.

Fuel Filters: Wm. W. Nugent & Co.

Fuel Meters: Buffalo Meter Co.

Air Filters: American Air Filter Co.

Exhaust Silencers: Burgess Manning Co.; Maxim Silencer Co.

Exhaust Pyrometers: Alnor, Illinois Testing Laboratories.

Switchboard: Westinghouse Electric

Voltage Regulators: Allis-Chalmers.

Pressure Gauges: U. S. Gauge Co.

"Community Caravan" Goes on Tour

A THIRTY-THREE-FOOT trailer, especially equipped for community-service purposes, with a loud-speaker system, a motion-picture projector, a library of publications on community activities, a small meeting room, and staff living quarters is now on a tour of nine major areas in which the Committee for Kentucky will encourage citizens of 71 communities to come together to discuss their local problems and to plan effective programs for their solution.

It is hoped that in each of the communities to be visited, local leaders will assume responsibility for organzing a "Community Week," as was the case in Somerset, where such an event was held with marked success during the week of January 24.

A mimeographed "Plan for a Leadership Education and Community Service Program to Stimulate Action in the Local Communities of Kentucky" has been issued by the Committee for Kentucky, and is available on application.

The purpose which activates the Committee is set forth in the preface to this mimeographed statement:

It has become the deep conviction of many people that the hope of democracy lies in the local community; that the battle for democracy will be won or lost in the local community; that as our local communities are strong, so will our America be strong.

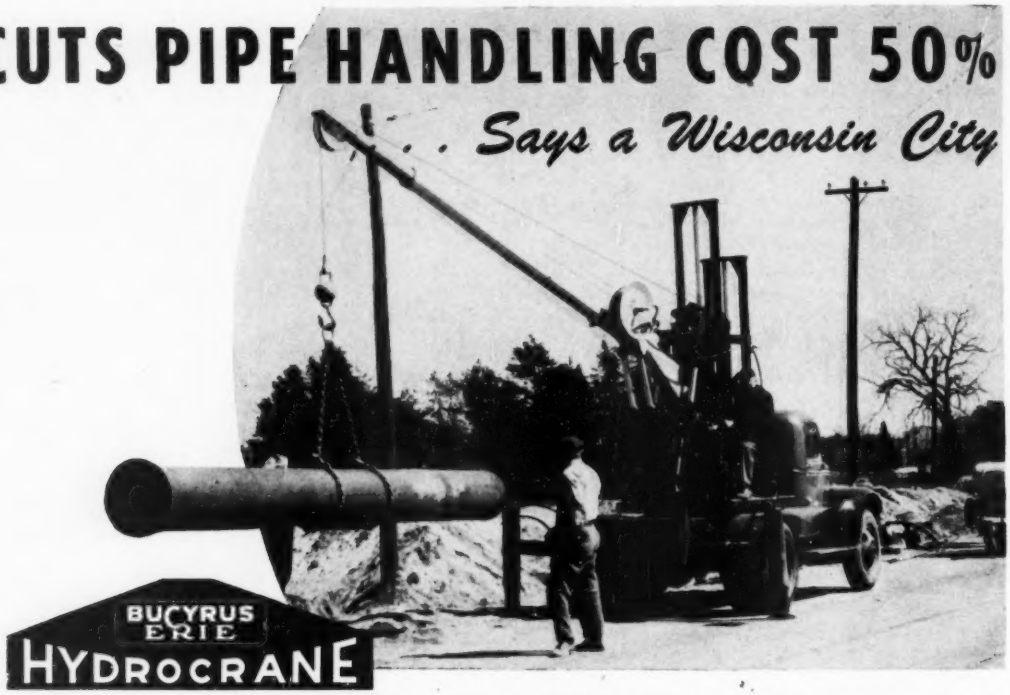
We believe that the local community is the training ground for the leaders of America. We believe that more and more problems must be attacked and solved at home — in the local community — rather than at some distant headquarters in the state or in the nation. We believe that it is of the utmost importance that the people of any community understand the *total* problems and opportunities of their community. We believe that there is a definite need for a connecting link between our communities and our state. Finally, we believe that if all groups in every American community can get together to discuss, work, and plan to solve their local problems, our democracy will become so strong that it will not only be able to meet every challenge, but it will actually grow stronger with each challenge.

One of Louisville's leading merchants, Harry W. Schacter, already known to many readers of THE AMERICAN CITY, is President of the Committee for Kentucky; Maurice Deitsell Bement is Executive Director; and James W. Armstrong is Director of Community Service Department. Headquarters are at 506 S. Third Street, Louisville.

The Committee for Kentucky's 33-foot trailer which is visiting 71 communities in the state.

CUTS PIPE HANDLING COST 50%

. . . Says a Wisconsin City



ON a pipe laying job for the Water and Sewage Utility of a Wisconsin City in the 15,000 population class, a Bucyrus-Erie Hydrocrane moved 5400 feet of 16-inch water pipe from freight car to trench in 28 working days — with only four workers. The superintendent wrote:

> "We are positive that use of the Crane reduced our handling and installation costs at least 50 percent, in addition to speeding up the project and reducing the amount of man power and equipment required. . . . This unit is invaluable for our type of work."

Here's what the fast-working, truck-mounted Hydrocrane did:

1. Unloaded pipe from railroad cars
2. Stockpiled pipe in city yard
3. Loaded pipe on trailers
4. Hauled trailers to job site
5. Distributed pipe along the trench
6. Lowered pipe into trench and held it in place for workers to set.

The Hydrocrane did all these jobs quickly, smoothly, easily despite the fact that each pipe length weighed between 1700 and 1800 pounds.

Every working function of the Hydrocrane is fully hydraulic. Control is so precise the operator can lower pipe a fraction of an inch at a time — an important safety factor. The Hydrocrane can also be used for many digging, erection and material handling jobs. Clamshell bucket closes hydraulically — gets big loads even in hard material.

Hydrocranes are available in two sizes — 2-ton ¼ yard Model H-2 and the 3-ton ⅜ yard Model H-3. For further information on this time and money-saving unit, fill out the coupon and mail today.

BUCYRUS-ERIE HYDROCRANE DIVISION
SOUTH MILWAUKEE, WISCONSIN

Gentlemen: I want the full story on the Hydrocrane.

Name.....

Dept. or Company.....

Address.....

City..... State.....

23H49

BUCYRUS-ERIE HYDROCRANE DIVISION
SOUTH MILWAUKEE, WISCONSIN

New Substance Is Intended To Increase Battery Life

By R. B. LOHRY
Engineer in Charge
Radio Division
Oakland, Calif.

The material AD-X2, offered as an aid to battery operation, has been under tests for the last six months by the Fort Monmouth, N. J., Laboratory of the Signal Corps, Department of the Army. If possible, the final results of these tests, which are still under way, will be presented in THE AMERICAN CITY.—*The Editors.*

ABOUT a year ago, when we were having trouble keeping our police-car batteries charged, a material called AD-X2 was described to us by its manufacturer, Pioneers, Inc., 2411 Grove Street, Oakland 12, Calif. We obtained samples and made a trial in the battery of our radio test car. The electrical system of this test car is standard equipment as provided by the manufacturer of the car. Connected to this battery are the following sets of two-way radio equipment:

1 Link Radio Corp. 30-40-mc gear with 10-ampere standby drain and 25.5-ampere transmitter drain.

1 Link 152-162-mc gear with 12-ampere standby drain and 30-ampere transmitter drain.

1 Motorola, Inc., 152-162-mc gear with 8-ampere standby drain and 42-ampere transmitter drain.

The battery of this car was treated with AD-X2 in accordance with the manufacturers' recommendations and sufficient time allowed, through use of the battery over a period of approximately 21 days, to produce results.

The following test was made to determine the capability of the battery. Using the Motorola equipment with the heaviest drain, the transmitter was turned on for one minute. During this period the car generator was not in operation. The open-circuit voltage of the battery dropped from 6.1 volts to 5.9 volts and remained steady for the duration of the run. The engine of the car was started and throttled for a steady charge rate of 15 amperes. The charging rate was observed as the test progressed. It was noted that the rate began a steady decrease in current to the battery. After a 25-minute charging of the battery, the charging current from the generator was automatically cut off by the voltage-regulating system of the car.

The radio equipment of this car is sometimes operated so that two sets of gear are in use during field tests and operated while the car is standing for periods of up to 1½ hours with the car motor stopped. Under these conditions the transmitter time on the air has amounted to a total of 10 minutes plus the standby drain. In all instances there has been no loss of performance of the radio equipment or failure of the battery to crank the engine.

It may be of interest to know the results obtained with two 4-volt batteries of the glass-jar type, one 20 years old, the other 25 years old. These batteries were filled with tap water and AD-X2 added. Note that no electrolyte was added. The batteries were placed on charge and the gravity of the liquid checked periodically. The current on initial start of the charge was less than ½ ampere and the voltage near 24 volts. Within ten minutes after the start of charging the current had risen to 2 amperes and the voltage had dropped proportionately. After 30 minutes of charging, the current had risen to 6 amperes and voltage steadied at 5 volts. Charging was continued for a 48-hour period.

At the end of the charging period the gravity of the electrolyte was 1.210 and 1.230 in the first battery and 1.20 and 1.250 in the second battery. These batteries have been watched closely, one standing on the shelf and the other in daily service. The battery on the shelf retains its charge over three months, which is better than accepted practice. The battery in daily service maintains its voltage under load and with only infrequent trickle charging. Since both of these batteries are of the glass-jar type, the action of AD-X2 could be seen during the progress of the charging.

After having had this experience with such old batteries the writer is convinced that the product AD-X2 merits consideration by all who use batteries of the lead-acid type for any service. My conclusions are that AD-X2:

1. Improves the battery capability
2. Reduces time required for battery to recover charge
3. Reduces or stops spraying of electrolyte by gassing
4. Scavenges shed material at the bottom of jar
5. Keeps battery in peak condition
6. Extends the useful life expectancy of the battery well beyond the guarantee period.

The 72 units of the Police Department have been treated for a period of eight months. There are 4 patrol wagons, 6 ambulances and 62 beat cars. Prior to treating the batteries with AD-X2, there was a daily occurrence of from 3 to 7 cases of battery trouble. Since treatment of the batteries, failures are rare. For three months there have been no cases of failures of the radio to operate because of battery trouble.

The Fire Department also has used AD-X2 for a period of eight months in all fire-fighting equipment (50 pieces including pumpers, chemical trucks, ladders, and an emergency light-plant truck). The chiefs' cars with two-way radio equipment are also treated.

Columbia University Adds To Planning and Housing Staff

HENRY S. CHURCHILL, Philip M. Klutznick, and Maxwell H. Tretter have been engaged by Columbia University to lecture or to assist in the development of planning and housing programs and studies.

Mr. Churchill, who has been named an Associate in Planning, is acting as a critic during the spring session. He is vice-chairman of the Committee on Urban Planning of the American Institute of Architects and former consultant to the Federal Public Housing Authority. He was the principal architect and planner on New York City's Queensbridge Houses, Section 3, as well as for the Town of Greenbrook, N. J., and his city-planning firm is working on the master plans for Hoboken and Jersey City.

Mr. Tretter, who has been named a Lecturer in Housing, will teach evening classes on that subject beginning next September. He is the former executive director and counsel for the New York City Housing Authority, and is now general counsel of the National Association of Housing Officials.

Mr. Klutznick, president of American Community Builders, Inc., has been named to the advisory board of the Institute for Urban Land Use and Housing Studies. He was formerly commissioner of the Federal Public Housing Authority, and is currently a member of law firms in both Chicago and Omaha. American Community Builders is developing the new town of Park Forest south of Chicago.

The 14-ton key to the city haul!

WHEN THIS SUBWAY excavation began, one problem was to find trucks that could truck the muck 24 hours a day and set a profitable pace over a route, 128 city blocks long!

These International six-wheelers could—and did! They took the muck, 8 yards at a crack, to a dump 8 miles away. Sure, they did it like they were made for the job. They *were!*

This operation required specialized equipment built for the job. The heavy-duty 6 x 4 International KB-11-F was selected. Reinforced side rails withstand unusual shock stresses of big loads dropping into the bed from elevated loading hoppers. The special power divider with integral auxiliary transmission provides a low creeper gear for pulling out of bad spots and an axle ratio coordinated with the main transmission to provide cruising speeds required to meet the schedule. Because of the heavy loads hauled through heavily congested areas, large-size heavy-duty air brakes were installed to insure safe operation.

That's what International means when it says it builds trucks *specialized* for the job. International offers 22 basic models, with gross weight ratings ranging from 4,400 to 90,000 pounds. And it forms 1,000 different truck combinations from 'em—one for every load, road, and haul.

And International's service facilities are just as complete as the line of trucks it offers. 4,700 International Dealers and 170 company-owned Branches are waiting to wait on you . . . any place . . . any time.

So whether you're working on a subway or a skyscraper, a sewer or a sausage factory, International offers a complete line of trucks specialized to the job. A call to your nearest International Dealer or Branch will put you on the right track to the right truck. Why not put in that call right away!

Other International Harvester Products . . . Industrial Power
Farmall Tractors and Machines . . . Refrigeration

Tune in James Melton and "Harvest of Stars"
NBC, Sunday afternoons

INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY · CHICAGO

How a Municipal Water Works Can Lose Friends and Antagonize People

An important way to avoid this is to get rid of "nuisance charges," the last small survivor of the public-be-damned policies characteristic of utility operation a half-century ago

MOST agree that water supply is a business. By its very nature it is a monopoly and therefore not subject to competition to keep its policies harmonious with those who receive its services. In the past, monopolies have subordinated customer interest to profit-making and have charged "all that the traffic would bear" rather than an amount that represented a fair return on the investment. We have seen this result in violent public resentment and in establishing regulatory bodies that fixed the rates and terms of operation. In water supply, the tendency has been for the community to purchase and operate its water service rather than depend on regulation from outside commissions. Since the public was in business with itself and it alone, it did not have the same incentive to charge itself "all that the traffic would bear." And the widespread popularity of these municipally owned water services has been one of the reasons for the private companies' giving great emphasis to good customer relations.

Despite this, disregard of the customer interests still remains here and there in the water industry. No better outline of it has appeared in recent years than was made by E. E. Norman, manager of the municipally owned Kalamazoo City Light and Water Utilities. Mr. Norman aired his opinions bluntly in a paper delivered before the American Water Works Association at its annual meeting held in St. Louis in 1947. He aimed his criticisms at those small penalty charges that still remain on so many meter-rate schedules. He showed that they annoy the customer, complicate the bookkeeping, and are of no help in collecting back bills. Here are some that he has listed:

The turn-on charge—frequently made when the water user fails to pay his bill; actually only an irritation to the customer. The Kalamazoo experience has shown that its elimination has had no effect on delinquent bill payment.

The trip charge—actually discourages prompt maintenance. A water utility should be glad to respond promptly to a customer's request for service.

Meter purchase—a practice no other utility would consider. No reason exists for the customer to purchase a device that he cannot control.

Meter repair charge—no more logical than the meter purchase charge. The customer cannot help it if the meter fails; and it generally is to his advantage to let it get out of adjustment.

Hot-water meter-damage charge—actually a result of customer carelessness. However, one warning generally suffices. Recurrences of hot-water damage are rare.

Frozen-meter-damage charge—also a result of customer negligence; however, advice on how to correct this fault generally suffices.

Meter-rent charge—illogical. No reason exists to force a customer to pay rent on an instrument that makes a charge against him.

Meter-test charge—a charge that works against the best interests of the water works. An inaccurate meter invariably favors the water user at the expense of the utility. Kalamazoo will test a meter without charge at any time. However, the customer is asked to be present at the time of the test.

Inspection of service connections—an expense to the customer and an irritation to the plumbers. Kalamazoo eliminates all this by installing all services from the main to the meter.

Service-connection repair—an unfair charge. Water departments should assume care and maintenance of all services and adopt the policy that the water is public property until it passes through the meter. In Kalamazoo the maintenance of service connections averages 60 cents per customer per year.

Holding water bills as a lien against the property—a bad practice, and not one that plays an important part in getting delinquent bills paid. If, Mr. Norman argues, the water works is not smart enough to collect the water bill when the tenant moves, why should it expect the property owner to make the collection for them?

"These nuisance charges," says Mr. Norman, "are not worth what they cost, and they cost plenty."

Anaheim, Calif.

Rates Per Month

First 750 cu. ft.	
In city	$1.50
Outside	3.00
Next 9,250 cu. ft.	
In city	.10 per 100 cu. ft.
Outside	.15 " " " "
All over	
In city	.08 " " " "
Outside	.15 " " " "

Minimum Charge	*In City*	*Outside*
¾" meter	$ 1.50	$ 3.00
1" "	2.10	4.50
1½" "	3.50	7.75
2" "	5.50	12.50
3" "	8.50	19.75
4" "	12.50	30.00
6" "	25.50	60.50

Private Fire Lines

For each 2" service or smaller	$0.75 per month
" " 3" " " "	1.00 " "
" " 4" " " "	2.00 " "
" " 6" " " "	3.00 " "
" " 8" " " "	5.00 " "
" " 10" " " "	8.00 " "

Water used through these services will be charged at the usual rate.

General Data

Population served	13,500
Services (100% metered)	3,963
Hydrants	454
Miles of main	54

Supply....Purchased from Metropolitan District, also wells.

There is no charge for fire-hydrant rentals, but all revenues from the department go to the General Fund.

Customer Costs

3,000 gals. (400 cu. ft.)	$1.50
5,000 " (667 " ")	1.50
10,000 " (1,333 " ")	2.00

These rates were established in 1946, cancelling rates put in effect in 1939. The new rates raised the minimum charges $.50 and lowered the charge 2c per 100 cu. ft. for large users.

V. W. HANNUM
Superintendent of Light and Water

John BEAN Shade Tree Equipment

Rotomist (above) is readily mounted on light truck. It gives you better shade tree protection; saves material; cuts manpower; makes light work of what were formerly tough jobs handling spray guns.

Effective Insect Pest Control

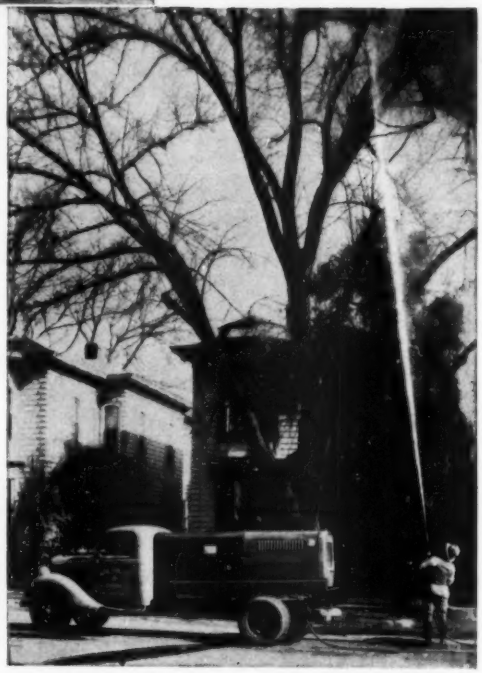
John Bean's complete line of specialized sprayers for shade tree work and for control of flies, mosquitoes and insect pests has met nation-wide approval. Whether your need is to make recreation areas pest-free, increase sanitary control, operate a community fly-control program, you'll find that a John Bean sprayer will do the job better and faster. Write for free Pest Control information.

Built to Fit All Your Needs

If you want fast operation, with thorough coverage and fatigue-free, one-man control, then the Bean *Rotomist* is the answer. The new 1949 *Rotomist* has many new design refinements and features that more than ever make *Rotomist* the best way to apply concentrates, dry dust or wet dust. Its aerodynamic design releases micron-sized spray particles that give complete coverage with a minimum of drift. It also eliminates deposit of spray material on cars or homes.

The operator has full visibility for efficient, easy operation with responsive hydraulic controls. Write for free Rotomist Catalog.

Whether your needs call for a conventional high pressure sprayer or a Rotomist concentrate applicator, you'll save time, money, material and maintenance cost with John Bean equipment.



The John Bean line includes models with outputs to 60 gallons per minute at pressures to 800 lbs. And, for hard-to-reach areas, back yards, etc., there are portable John Bean sprayers and concentrate applicators. Write for free, complete information on John Bean specialized shade tree and pest control equipment.

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DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION

Grand Forks, N. D.

Rates Per Month
First 1,000 gals. or fraction thereof, 50c
Next 20,000 gals., 35c per 1,000 gals. or fraction thereof
Next 70,000 gals., 20c per 1,000 gals. or fraction thereof
Next 100,000 gals., 15c per 1,000 gals. or fraction thereof
Sprinkling (in season), 15c per 1,000 gals. or fraction thereof

There is no charge for public fire hydrants used by the city either for fires or for street sprinkling. The private use of public hydrants is permitted when the water is metered, and a charge is made at the regular rate plus a service charge of $1.50 for installing and removing the meter.

General Data

Population served	25,000
Services	4,738
Meters	4,735
Hydrants	440
Valves	506
Miles of mains	42.5
Service levels	1
Storage, ground	Raw 3 mg treated
Pressure	200,000 gals. overhead tanks
Treatment	Softening and purifying
Average demand	2,250,000 per day
Plant capacity	4 mgs per day

Water (Treated) Characteristics

$CaCO_3$	55
pH	9.4
Temperature	58°F

Customer Rates

3,000 gals. (400 cu. ft.)	$1.20
5,000 " (662 " ")	1.90
10,000 " (1,333 " ")	3 65

R. M. JENSEN
Superintendent

Watertown, N. Y.

Rates Per Month

First 3,300 cu. ft.	$.90 per 1,000 cu. ft.
Next 29,700 cu. ft. incl.	.70 " " " "
Next 297,000 cu. ft. incl.	.50 " " " "
All over 330,000 cu. ft. incl.	.30 " " " "

Service Charge Per Month

⅝" meter	$ .25
¾" "	.40
1" "	.60
1½" "	1.10
2" "	1.75
3" "	3.40
4" "	5.00
6" "	10.00
8" "	15.00
10" "	20.00
12" "	25.00

For services not used for fire protection, a meter may be used as small as will accommodate the business, and the service charge shall be based upon the size of the meter and not upon the size of the pipe.

General Data

Population	38,000
Services	7,100
Meters	7,000
Hydrants	565
Valves	1,050
Miles of mains	84.25
Service levels	1
Storage	8,000,000 gals.—open reservoirs
Treatment	Coagulation, filtration, chlorination
Average demand	6,000,000
Plant capacity	9,000,000

Water Characteristics

	Raw	Treated
$CaCO_3$	30	28
Fe	.04	.04
Mn	.04	.01
pH	6.8	7.2
Temperature	33°—81°	33°—81°

Customer Costs Per Month

3,000 gals. (400 cu. ft.)	$ .61
5,000 " (667 " ")	.85
10,000 " (1,333 " ")	1.45

THOMAS TYLDESLEY
Superintendent Water Works

Oklahoma City, Okla.

Rates Per Month
First 1,000 gals. included in minimum bill.

	Gross	Disc.	Net
Next 4,000 gals.	$.37	$.02	$.35
Next 99,000 gals.	.27	.02	.25
Next 400,000 gals.	.20	.02	.18
Next 450,000 gals.	.16	.02	.14
All over 5,000,000 gals.	.11	.02	.09

Minimum Charge

⅝" meter	$1.60	$.10	$1.50
¾" "	1.85		1.75
1" "	2.40	.15	2 25
1½" "	4.75	.30	4.50
2" "	8.00	.50	7.50
3" "	16 00	1.00	15.00
4" "	21.00	1.50	22 50
6" "	48.00	3.00	45.00

For all water used for domestic purposes only, in excess of 1,000 gallons and less than 501,000 gallons in any one month outside the city, 50% additional is charged.

General Data

Population served	260,000
Services	49,859
Meters	49,859
Hydrants	2,173
Valves	3,491
Miles of mains	455
Service levels	36 inches
Storage, pressure, 22 mg surface storage for repumping; ½ mg overhead storage and 10 mg storage now being added.	
Treatment	Lime, soda
Average demand	21.2 mg daily
Plant capacity	39 mg daily

Water Characteristics

	Raw	Treated
$CaCO_3$	250 ppm	80-85 ppm
Fe and Alumina	Trace	Trace
Mn	None	None
pH	7.8	9.3
Temperature	35°-85°	45°-85°

Customer Costs Per Month

3,000 gals. (400 cu. ft.)	$2.20 net, ⅝" meter
5,000 " (667 cu. ft.)	2.90 net, ⅝" meter
10,000 " (1,333 cu. ft.)	4.15 net, ⅝" meter

These rates became effective in April 1948. The major charge was limited to the first blocks. Although not so stated, it represents a sewer service charge.

M. B. CUNNINGHAM
Superintendent and Engineer

Ripon, Wis.

Rates Per Month (Output Charge)
First 500 cu ft. used per month, 17c net per 100 cu. ft.
Next 3,000 cu. ft. used per month, 15c net per 100 cu. ft.
Next 5,000 cu. ft. used per month, 12c net per 100 cu. ft.
Next 10,000 cu. ft. used per month, 9c net per 100 cu. ft.
Next 31,000 cu ft. used per month, 6c net per 100 cu. ft.
Over 50,000 cu. ft. used per month, 4½c net per 100 cu. ft.

Fixed Charge

½" and ⅝" meters, one consumer on meter	$ .45 a month
¾" meter, one consumer on meter	.50 " "
1" " " " " "	.67 " "
1½" " " " " "	1.00 " "
2" " " " " "	1.33 " "
3" " " " " "	2.00 " "
4" " " " " "	4 00 " "

Minimum monthly bill—the fixed charge.

Prompt Payment of Bills—Bills are computed at the net rates and a sum of 1c per 100 cu. ft., but not to exceed 10% of net bill nor be less than 15c, is added to determine the gross bill. This sum will be deducted from the gross bill if the bill is paid within 10 days from its date.

Each residence, flat, apartment, store, office, or factory is considered as one customer. Where more than one customer is served through one meter the output blocks of the rate are determined by multiplying the size of the blocks in the above rate by the number of customers served through the meter. The service charge depends upon the size of meter required. One customer assumes responsibility for the entire bill.

General Data

Population	5,000
Population served	5,000
Number of services (including services to hydrants)	1,488
Number of meters	1,374
Number of hydrants	142
Miles of water main	16.68

Customer Costs Per Month for ½" and ⅝" Meters

3,000 gals. (400 cu. ft.)	$1 13
5,000 " (667 " ")	1.55
10,000 " (1,333 " ")	2.55

Public Fire Protection Service
The City of Ripon is charged $7,630 per year to cover the use of mains and hydrants up to and including the terminal hydrant and connection on each line of main and hydrants existing March 1, 1938, plus an annual charge of 8c per foot of lineal main and $7.50 per hydrant added to the system.

Nashville, Tenn.

Rates Per Quarter
Minimum (1,000 cubic feet or less) per quarter, $1.80.

Cu. ft. per quarter		Per 100 cu. ft.
First	1,000	18c
Next	4,000	15c
"	10,000	13c
"	20,000	11¾c
"	65,000	10¾c
"	300,000	8¾c
Over	400,000	6¾c

Double above rates outside the city.
The above rates apply to net bills. The gross bill is calculated by adding 2c per 100 cu. ft. to the net bill, not exceeding 25,000 cu. ft.

Minimum Charge

⅝" meter	$1.80
¾" "	2.70
1" "	3.75
1½" "	6.00
2" "	12.00
3" "	18 00
4" "	24.00
6" "	33.00

General Data

Population served	232,575
Services, direct	39,703
Services, outside city limits	6,816
Meters	39,742
Hydrants	2,647
Valves	5,194
Miles of main, inside the city	376.6
Miles of main, outside the city	302
Service levels	2
Supply	Cumberland River
Storage, masonry reservoir on hill	51 mg
Storage, high service reservoir	2 mg
Treatment	Aeration, coagulation with alum, sedimentation, rapid sand filter, chlorine and ammonia
Average demand	28 mgd
Plant capacity	40 mgd

Water Characteristics

$CaCO_3$	90 ppm
pH	7.1

Customer Costs Per Month

3,000 gals. (400 cu. ft.)	$0 60
5,000 " (667 " ")	0.93
10,000 " (1,333 " ")	2.13

All water receipts are paid to the City Treasurer, as are all other receipts of the city. The Water Department budget is a subdivision of the General City Budget and is borne by the General Fund. All major improvements are financed by bonds which are the general obligation of the central sinking fund of the city; however, this Department, for many years, has taken in receipts sufficient to offset its current operating expense, also the interest and retirement of bonds, and in addition, make available for the operation of other departments a sum approximating $250,000 to $300,000 annually.

The plant has an approximate valuation of $10,000,000. The present current property-tax rate in this city is 23 mills. The Department is actually making available to the General Fund a sum considerably in excess of the full tax rate applied against the full value of our plant.

All fire hydrants are installed and maintained by the Water Department at its expense. The Department receives nothing, not even accounting credit for such service and protection.

R. L. LAWRENCE
Director, Water Department

. . . and here's why:

- Heavy Duty LIGHTWEIGHT Magnetic Armature MOTOR
- Improved GEAR-TRAIN
- STRAIGHT-LINE Ratchet Arm Movement
- Self-locking, vibration-proof DIAL KEYS
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- 18-interval CAM with consecutively numbered teeth
- "CHATTER-PROOF" long-life CONTACTS
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(Tax Waived for Municipalities)

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A SUGGESTION

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It contributes to their welfare, comfort and health.

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MURDOCK

OUTDOOR DRINKING FOUNTAINS
HYDRANTS
STREET WASHERS

Mayors Hold Widely Publicized Conference

FEW, if any gatherings of municipal officials in this country have been so honored by the presence and participation of the nation's top officialdom and distinguished private citizens as was the annual meeting of the United States Conference of Mayors in Washington, D. C., March 21-23. The important role of cities as politically powerful units of government and as strongholds of democracy is increasingly recognized in the nation's capital.

Among those who took part in the various meetings and programs of the widely publicized Conference, and who looked upon it as a major sounding board for their views, were President Harry S. Truman, Vice-President Alben W. Barkley, Senators Arthur H. Vandenberg, Robert A. Taft, Burnet R. Maybank, and Brien McMahon; Representatives Albert Rains, Frank Buchanan, and John W. McCormack; Chairman David E. Lilienthal of the Atomic Energy Commission; Oscar L. Chapman, Under Secretary of the Interior; General Philip B. Fleming, Administrator of the Federal Works Agency; General Dwight D. Eisenhower, and Bernard M. Baruch.

Guests of the Conference included a delegation of 18 Canadian mayors and municipal officials headed by Mayor Lucien Borne of Quebec, President of the Canadian Federation of Mayors and Municipalities; Mayor H. E. Stokke of Oslo, Norway; Senator Emile Vinck of Brussels, Belgium, Director Emeritus of the International Union of Cities, and Dr. Ernest Reuter, Mayor of Berlin, Germany.

Presidential Address

Housing, urban redevelopment, rent control, and problems of municipal finance were the conference discussions of key municipal interest. These matters were all touched upon in President Truman's address. The President urged cities to embark immediately on the tremendous task of planning for slum clearance and public housing projects which will be authorized by the anticipated passage of the 1948 General Housing Bill. With regard to urban redevelopment, he said:

> Many cities are paying now—in crime, in disease, and in blighted areas for the haphazard way their land has been developed. Whole areas now need to be cleared out and put to good uses; utilities need to be improved and rearranged; schools and public buildings need to be rebuilt; and future expansion must be properly guided in the interest of the whole community. . . .

As our modern civilization requires people to live and work together in larger and larger groups, cities take on more and more importance — and city governments face greater responsibilities. In many respects, we have failed to adjust our thinking to the increased importance of our cities in political and economic affairs.

It is a mistake to act as if the cities were inferior administrative subdivisions. It is a very serious mistake—because for most of our population, city government is the form of democratic self-government, which is closest to the people.

—From address by President Truman before the U. S. Conference of Mayors.

The President told of his own personal interest in bringing order out of "the tangle among cities, states, and the Federal Government in the field of taxation and financial relations," and said that he had asked the Secretary of the Treasury, John W. Snyder, to report to him on the meeting which has been called with municipal and state representatives on that problem in Washington this month.

Senator Maybank, chairman of the Senate Committee on Banking and Currency, and Representative Buchanan, member of the House Committee on Banking and Currency, both reported progress on federal housing legislation. Descriptions of the work of local redevelopment authorities and local housing authorities to prepare for anticipated federal legislation were given by Mayor Dennis J. Roberts of Providence; Mayor Eugene I. Van Antwerp of Detroit; C. A. Harrell, City Manager of Norfolk, and Mayor Vincent J. Murphy of Newark.

A Marshall Plan for Cities Proposed

"Wanted: A Marshall Plan for America's Cities" was the lead-off address by Mayor David L. Lawrence of Pittsburgh for the discussion on city finances. Such a plan, he said, must concentrate on rebuilding values back into our central city areas, and on restoring the balance between our income and our needs. It should comprise effective federal and state aid for urban redevelopment, sweeping elimination of slums, and dramatic reconstruction of desirable city environment. The main objective, he said, is to restore the independence of action of the cities and their ability to meet and solve their own problems on their own level. Mayor Charles P. Farnsley of Louisville, Samuel B. Dicker of Rochester, Joseph E. Smith of Oakland, and W. Cooper Green of Birmingham also described successful tax and revenue devices in effect in their cities.

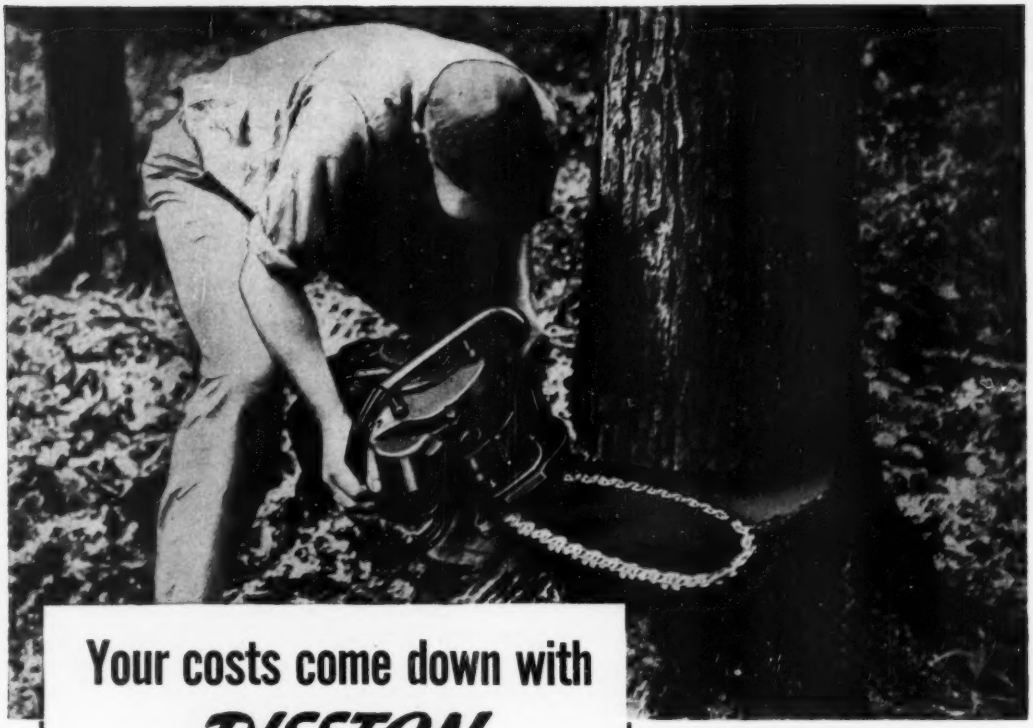
Among the other participants on the Conference program were Mayor William B. Hartsfield of Atlanta, who spoke on that city's annexation problems; Representative Albert Rains, who asked municipal support for federal aid to school construction; Austin J. Tobin, Executive Director, The Port of New York Authority, who urged that cities use great caution in entering upon lease agreements with private airlines; Robert Moses, City Construction Co-ordinator of New York City, and J. L. McCaffrey, president of the International Harvester Company. Thomas d'Alesandro, Jr., Mayor of Baltimore, reported on his work as chairman of the Conference Standing Committee on Legislation, and Mayor George W. Welsh of Grand Rapids, retiring president of the Conference, told of the substantial progress which has been made in national and urban relations. Radio broadcasts on Atomic Energy and a Town Meeting of the Air program in which the mayors participated were two other features of the Conference.

Resolutions Adopted

Mayor Frank P. Zeidler of Milwaukee sponsored a resolution which pointed out that the ability of cities to meet their needs for public works is profoundly affected and influenced by national economic policy, and which requested that the President's Council of Economic Advisers set national goals for the construction of needed public works. Other resolutions included those asking for the establishment of a Joint Congressional Tax Commission; direct federal loans and grants to public agencies for school construction, and extension of rent-control legislation.

New officers of the Conference are the following Mayors: W. Cooper Green of Birmingham, president; David L. Lawrence of Pittsburgh, vice-president; trustees are Martin H. Kennelly, Chicago; William O'Dwyer, New York; Thomas A. Burke, Cleveland; Joseph E. Smith, Oakland; Stanley W. Church, New Rochelle; Oscar F. Holcombe, Houston; William McG. Morrison, Charleston, S. C.; and Watkins Overton, Memphis. Chairman of the Advisory Board is Mayor Michael V. di Salle, Toledo.

Thanks and appreciation were expressed to Mayor Welsh of Grand Rapids for his two years of excellent leadership to the Conference. Paul V. Betters, who continues as executive director, with headquarters at 730 Jackson Place, NW., Washington, D. C., was also complimented for his services in helping to safeguard and advance municipal interests on the national scene.



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Or write direct for full information.

NEW DISSTON ONE-MAN BOW SAW FOR ADDED USES

No more pinch, drag and strain in the cut. Available as a complete unit (Price $432)—or as an extra useful accessory (Price $55 including chain). Quickly interchangeable with Disston One-Man Guide Rails, anytime —anywhere.

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The Municipal Bond Market

By FREDERICK L. BIRD
Director of Municipal Research
Dun and Bradstreet, Inc.

THE gross debt of state and local governments, if it continues to increase at the recent and current rate, will reach a new high in the near future. Data published by the Bureau of the Census indicate that following the peak of $20.2 billion attained at June 30, 1940, the gross declined to a recent low of $15.9 billion at June 30, 1946. Thereafter it increased to $16.8 billion at June 30, 1947, and to $18.6 billion at June 30, 1948, a rise of $2.9 billion in two years.

This trend, as it relates to local governments, calls for special attention because of the frequently raised question of their ability, under existing legal and fiscal limitations, to finance the formidable assortment of capital improvements which many of them still need. There is some reassurance in the fact that by far the largest increase, percentagewise, has been in state debt, mainly for veterans' bonuses. The gross debt of the states on June 30, 1948, $3.7 billion, was not only 60% above the $2.3 billion in 1946 but nearly 6% above the $3.5 billion in 1940. The gross debt of local governments, however, had increased only 10%, from $13.6 billion to $15 billion, and was still 10% below the $16.7 billion in 1940.

Minimizing the effect of the increase thus far on the borrowing power of local governments is the fact that these are gross figures, including large amounts of both general-obligation and revenue bonds issued for public-service enterprises. The bulk of such borrowing is deductible in computing legal borrowing margins, and so long as the enterprises are self-supporting it places no burden on the general taxing power.

MEDIAN, OVER-ALL NET DEBTS, 200 LARGEST CITIES, 1948 AND 1940

(Per Capita and in Relation to Estimated Full Taxable Value)

Population Group	Per Capita		Ratio to Estimated Full Taxation Value	
	1948	1940	1948	1940
Over 500,000	$106.24	$137.29	6.4%	8.4%
250,000 to 500,000	113.73	102.17	6.4	7.6
100,000 to 250,000	60.09	90.29	4.2	6.4
50,000 to 100,000	70.54	86.39	4.0	6.1
200 cities	71.77	94.35	4.5	6.4

Local Debt Burdens Still Below 1940

With respect to the tax-supported debts of local governments, if the increases in population and taxable valuation are taken into consideration, the local debt burden of the average urban community is still well below that of 1940. This is true, at least, of the nation's 200 largest cities. The accompanying table compares, for 1948 and 1940, the median, over-all, net debts of these cities, by population groups, on a per capita basis and in relation to the estimated full value of taxable property. By way of explanation, the "over-all" debt for each city on which the compilation is based is a composite figure, including the net debt of the city itself and the city's proportionate share of the net debts of the overlapping units of local government—county and school and special districts. The net figures have been computed by deducting from the gross all general sinking funds and all public enterprise debt to the extent that it is self-supporting. The purpose of these somewhat involved computations is to secure realistic figures which take into account the fact that the local debt is usually represented by two or more overlapping units of government. Since estimated populations for 1948 have been used, the per capita figures are approximate.

The over-all net debts of one-half the cities in 1948, as the median figures indicate, ranged downward from the relatively low figures of $71.77 per capita and 4.5% of estimated full taxable value. The range upward for the 200 cities reached a top of $417.67 per capita and 28.7%, but this was an isolated hangover from the land speculation of the 1920's. Only 9 of the 200 had debts of more than $175 per capita and the debt ratios of only 14 exceeded 10%, a ratio which in the past has seemed to mark the boundary line of conservatism.

The urban public-debt situation is, on the whole, considerably better than it is generally pictured. Most of the publicity has been given to that minority of cities which, either through unduly restrictive borrowing and taxing limits or because of excessive borrowing or poor debt administration in the past, are genuinely handicapped in their ability to finance capital improvements. Among this minority, however, are several large central cities with major problems of rehabilitation and some of the urban centers that have had abnormal recent growth. A real problem is developing, moreover, in the financing of adequate school facilities in new suburban communities of modest type where taxable resources are limited and the school population is rising rapidly. That this particular problem will become increasingly difficult of solution is suggested by the forecasts of the Bureau of the Census that elementary-school enrolment will reach a peak in 1957 almost 46% above 1947, and that high-school enrolment will reach its peak in 1960, 29% above 1947.

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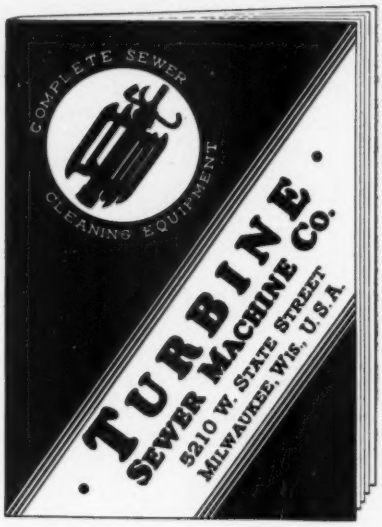

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Park Program

(*Continued from Page* 91)

a great stimulus to homebuilding with a consequent rapid increase in assessed valuations.

A study made by a firm of municipal accountants in 1939 showed that assessed valuations on properties adjoining one of the first parks to be developed in Union County—Warinanco Park—had jumped 631.7% over a 17-year period in the City of Elizabeth, and 256.7% in the Borough of Roselle, and these increases were several times greater than the increases shown for the remaining lands in the two municipalities. At that time, it was estimated that the tax revenue on the increased valuations directly traceable to park development was such that it could have paid for the entire cost of this park in a five-year period. Similar increases have been recorded for virtually all of the county park developments.

Steps Toward Land Acquisition

The work of the Bergen County Park Commission during its second year of activity consisted chiefly of the initial steps in a land-acquisition program. The primary task was to assemble all data available concerning the parcels of land considered desirable for park purposes, with a view to determine which were owned by municipalities or held by them under tax-lien foreclosure certificates, and which were held under private ownership. It was important also to find out the extent to which these lands were developed, and the assessed valuation of the properties.

With the aid of assessment maps of the various municipalities affected, and guided by aerial photographs obtained previously, maps of the areas considered for acquisition in the near future were drafted. A card file was created to list the data, noting the block and lot number of each property, the assessed valuation, and a description of any improvements. Photographs were taken of the areas to supplement the records.

Municipalities holding land desired by the Park Commission were contacted and negotiations with many of them were begun which will affect a total of more than 500 acres. Letters to initiate negotiations for land owned privately were sent to 468 persons. The response was encouraging and caused the Commission to prepare for its next step—appraisals. This work is now in progress.

The economic value of parks is the important lesson for each taxpayer to learn. Though park systems cost large sums of money, these costs, even judged by the advanced levels of today, are absorbed in the increased returns from the improved realty situation. Parks help stabilize the values, both social and economic, of an established community. They serve as a deterrent against traffic accidents among children and delinquency among juveniles, and offer the facilities needed to expand the social life of the community. Whatever the cost of parks may be, the values lost through the deterioration of a community without them would reach a far greater figure.

To bring this message home to the taxpayers — those who must support park appropriations — a park commission should establish a public relations program. Information should be made available to the public, partly through annual reports, digest of surveys, and articles of public interest on park problems, and partly through a service to answer the calls of various county agencies and organizations for speakers.

The Bergen County Park Commission has found this service valuable in bringing its message to the people. Commission members addressed approximately 25 county groups during the past year. Work has started on a library of slides made from maps and photographs to illustrate the Commissioners' talks on future occasions. The public wants to be informed. However, as many a holder of an insurance policy neglects to familiarize himself with all the provisions of the contract, so many a taxpayer needs patient explanations to appreciate the public-park programs.

Toledo Starts Extensive Microfilming

THE Commission of Publicity and Efficiency put its new microfilm installation in operation in September 1948. As a test run, the Commission staff microfilmed copies of the *Toledo City Journal*, starting with the first issue on February 26, 1916. Recordings of the *Journals* were made with images 16 millimeters on a 35-mm film, providing approximately 200 feet of images on each roll of films.

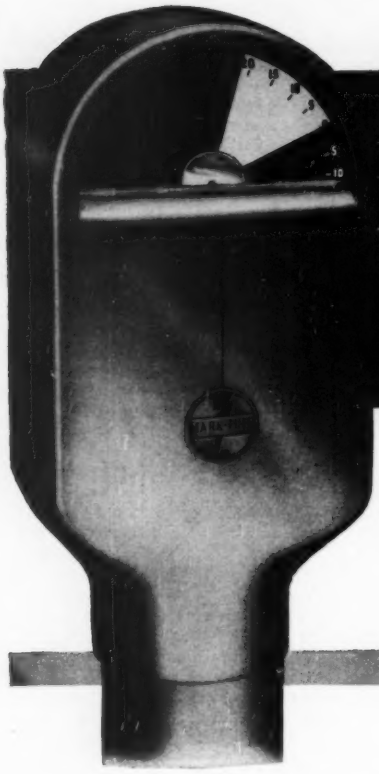
Since the *City Journal* was founded, copies of back numbers have been retained in the Commission files to supply needs of copies of ordinances or other official documents. Several tons of these back copies of the *City Journal* are stored in the Commission offices and library. When the record of all of these is completed by the microfilm process, these files can be cleared, reducing the need for filing cases, reducing fire hazards and improving office functioning and the public service. Thereafter, when copies of old issues of the *Journal*, or copies of parts of *Journals*—legislation, reports or other material — are needed, the microfilm viewer will reproduce the material.

The camera automatically photographs printed, written, or typewritten material as pages, fed into the machine, and the rolls of film are wound automatically through the film processing baths for development. A full roll of films is developed in about an hour, with a signal light indicating when the job is completed.

To assist the *City Journal* and the Commission, the City Council ordered installation of the microfilming equipment of Diebold, Inc., Canton, Ohio. The Council felt that this process in the Commission offices very logically could reach out to other offices of the city to relieve them of overburdened files. This program will effect economies, since it costs much to provide steel filing cases and building space to house the filing cases. This modern approach to an old problem has caught on in private industry in recent years. Banks, manufacturers, newspapers, and libraries have resorted to microfilm to answer their storage problems. It is estimated that thousands upon thousands of dollars can be saved through the years by this technique.

RUSSELL BREMER
Secretary
Commission of Publicity and Efficiency
Toledo 2, Ohio

Edwin Wilczynski of Commission Staff is feeding material into a microfilm camera; Miss Edith Pilzecker is seen copying material from the viewer.



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Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.

Baseball Stadium In Residential Area

MARYLAND. *Green* v. *Garrett*, 63 Atlantic (2d) 326 (Maryland Court of Appeals, January 13, 1949).

In 1922 the City of Baltimore built a large athletic stadium on a run-down vacant tract, owned by the City Department of Parks and then surrounded by other vacant land. The structure was not much used for many years, and acquired such nicknames as the "White Elephant," "Lonely Acres," and "The Vast Void." In 1931 the first Baltimore zoning ordinance placed the area in a residential district, and the stadium thereby became a non-conforming use. However, after the installation of a public address system in 1935 and especially of night lighting in 1939, the use of the stadium for night football and similar events increased rapidly. When another stadium used by the Baltimore Orioles of the International (baseball) League burned down in 1944, the Orioles moved to the stadium—first temporarily, then in 1947 under a long-term agreement. The Orioles played most of their games at night and on Sunday, and of course the increase in use of the stadium brought various annoyances to the inhabitants of near-by residences. As a result, a taxpayers' action was brought to enjoin use of the stadium for profesional baseball during 1947 season, and also to enjoin the loud-speaker system, the floodlights, and public parking on the dusty vacant lot near by. Both the lower Court and the Maryland Court of Appeals dismissed the principal action but granted some relief as to details.

In the opinion, the Maryland Court first agreed to entertain the action as a taxpayers' suit against allegedly unlawful municipal action, even though it involved not a waste of public funds but a highly profitable arrangement. Second, the Court held that the Baltimore Park Department's charter power to "maintain . . . athletic and recreational facilities and activities for the people of Baltimore City" included the power to operate a stadium where the residents could watch profesional baseball. The Court noted that

> "Watching games of baseball, and particularly a game of professional baseball, is to many people in the city the greatest possible recreation with respect to athletic activities."

Third, the Court held that a more frequent repetition of the same non-conforming use of property was not an extension of non-conforming use or a violation of the zoning ordinance.

Finally, while noting that residents of a city could not expect to retain the peace and quiet of the country, the Court invoked a nuisance doctrine to provide some relief. In the lower Court, the indiscriminate use of a public address system for music and announcement had been enjoined. On appeal, the lights were also required to be tilted down, so as not to shine into the windows of the near-by residences; and the use of a large dusty dirt field near the stadium for parking was enjoined until that field should be paved.

Total Exclusion of Manufacturing from Town

The Creskill decision, reported in THE AMERICAN CITY for December 1948 (page 149), has been unanimously reversed by the new top Court in New Jersey. The opinion raises important issues on both residential zoning and regional planning generally. Moreover, it *may* point the way to a new trend, in which New Jersey cities and towns may be permitted to exercise normal planning functions without being repeatedly reversed by the Courts. The decision will be discussed more fully in the next issue.

Veterans' Housing In Rhode Island

RHODE ISLAND. *Opinion to the Governor*, 63 Atlantic (2d) 724 (Rhode Island Supreme Court, January 24, 1949).

A 1946 Act of the Rhode Island legislature set forth the existence of a housing shortage, particularly affecting veterans, and so of an emergency in the City of Providence. On this basis the Act authorized the issuance of a specified amount of bonds, and the signing of contracts with the local Housing Authority to promote housing projects in that city. Two years later, the Governor requested an advisory opinion on the validity of the Act. The opinion of the Rhode Island Court, while upholding the Act as authorizing expenditures for a "public" rather than a "private" purpose, is full of thoroughly reactionary overtones.

The decision was carefully limited to upholding this restricted program of public housing, arising directly out of the post-war emergency shortage. Moreover, the opinion played down the emphasis in the Act on veterans' housing. The Court then went on at length to argue that, apart from these abnormal emergency conditions, the state and the city have no power to use either public funds or eminent domain for a housing program. Under this view, even the obvious necessities of life could not be provided by the State as a general rule.

The opinion also floundered around for four columns of print, trying to discuss the nature of an emergency and the power of a legislature to declare that one exists. While that is a singularly unrewarding debate in any case, it seems particularly incongruous when (as here) the Court ends up by invoking the doctrine of judicial notice to recognize the emergency in question.

Under established federal policy, the subsidized public housing program must not only *not* compete with private enterprise, but must be so arranged as to leave a sizeable gap between the lowest group reached by private building and the top group served by public housing. This policy by definition creates a group which cannot be served by either program. In New York the city government has begun a program of unsubsidized public housing to serve this group. However, if the theory here advanced by the Rhode Island Court were to be generally accepted, city governments would be forbidden, as a matter of constitutional law, to try any experimental housing program designed to serve this considerable portion of their population.

Roadside Vegetable Stand In Residence District

RHODE ISLAND. *D'Acchioli* v. *Zoning Board of Appeals of City of Cranston*, 60 Atlantic (2d) 707 (Rhode Island Supreme Court, August 4, 1948).

The residence zoning regulations in Cranston permitted "Agriculture, Nursery, Greenhouse, Truck Garden," and admittedly authorized the sale of agricultural products raised on the premises. When a 4½-acre tract in the area failed to produce enough fruit and vegetables to support a retail business, apparently primarily because of mechanical failure in the extensive irrigation equipment which had been installed, the lessee apparently began to use the existing stand for year-round sale of agricultural produce grown elsewhere, and brought certiorari to obtain an exception or a variance authorizing such use. Protests were entered by several neighbors, citing the increase in traffic resulting from the stand; and the Board denied the application on the grounds that the proposed use would injure neighboring property and that this piece of property could be devoted to other beneficial use. The lessee appealed, alleging that his proposed use was made appropriate by the other non-conforming uses in the neighborhood.

The Court readily agreed that the sale of products raised on the premises was permitted under the ordinance. However, the sale of tropical fruits and other products imported from elsewhere was held to be quite different, a business use in violation of the ordinance. Moreover, while a few small non-conforming uses did exist in the vicinity, nevertheless the residential community had developed in spite of their presence. The denial of both an exception and a variance was therefore held proper.

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Annexation—Authentication of Petition Withdrawing Signatures From Original Annexation Petition

Where city ordinance, annexing territory of town, was declared null and void because of insufficient signatures to petition for annexation, and city appealed from judgment on ground that petition authorizing withdrawal of signatures had not been authenticated, held, in affirming judgment, that statute does not require authentication of original annexation petition. *Town of Blooming Grove* v. *City of Madison*, 33 N. W. (2d) 312 (Wis., July 1, 1948).

Annexation—Home-Rule City—Validity of Ordinance Where City Exceeds Powers Granted by Statute

Where home-rule charter provided that city limits could be extended by ordinance only as prescribed by statute, held that city was not authorized to adopt annexation ordinance without submitting question to qualified voters of city and of territory to be annexed as required by statute. *Willman* v. *City of Corsicana*, 213 S. W. (2d) 155 (Tex. Civ. App., July 22, 1948). *Reh den.* Aug. 12, 1948.

Gambling—Pinball Machines—Legality of Seizures by Police Commissioner as Gambling Devices

In action to enjoin police commissioner of New York City from seizing or interfering with possession or operation of pinball machines, held that court would not enjoin such seizures where external appearance of admittedly illegal free play machines and non-free play machines was same and where commissioner's conduct was conscientious desire to enforce law. *Seaboard New York Corporation et al.* v. *Wallander*, 80 N. Y. S. (2d) 715 (N. Y. Sup. Ct., Spec. Term, N. Y. Co., June 25, 1948).

Garbage Incinerator—Illegality Of Construction of in Area Zoned Against Such Use

Where Town of Hempstead proposed to build garbage incinerator on site zoned against such use, held that since such construction would be illegal, town would be restrained from expending any public funds for engineering fees or architect's fees for such purpose. *Nugent* v. *Quinn et al.*, 82 N. Y. S. 243 (N. Y. Sup. Ct., Nassau Co., June 25, 1948).

Eminent Domain—Slum Clearance—Failure to Clear Property Previously Acquired

In action to enjoin city from proceeding in condemnation suit to acquire land for purpose of clearing slums therefrom, held city's failure to clear land previously acquired due to recent war conditions and housing shortage would not justify enjoining city from proceeding in present condemnation proceeding but would be fact to be considered by jury in determining necessity of city's acquiring land in condemnation proceeding. *General Development Corp.* v. *City of Detroit*, 33 N. W. (2d) 919 (Mich., Oct. 4, 1948).

Excise Taxes—Validity of City And County Levy for Establishing Public Hospital in County

Where City and County of Tuscaloosa levied license and excise taxes, parelleling those imposed by state, to establish public hospital, held that stipulating levy was joint debt due city and county did not violate statute against extra-territorial municipal taxation, nor was levy unconstitutional on ground local levy parallels those then imposed by general law of state. *Newton* v. *City of Tuscaloosa*, 36 So. (2d) 487 (Ala., June 30, 1948).

Occupation Taxes—Gross Receipts—Attorneys

In action for declaratory relief, held gross-receipt occupation tax levied by City of Los Angeles for revenue purposes was a "municipal affair" within constitutional grant and not limited by charter and was valid as applied to an attorney although practice of law could only be licensed and regulated by state. *Franklin* v. *Peterson et al.*, 197 Pac. (2d) 788 (Cal. App., Sept. 28, 1948).

Parks—Validity of Regulation Prohibiting Carrying of Signs In City Park Without Permit

Where defendants were convicted of violating rules and regulations of Department of Parks of City of New York prohibiting carrying of signs in city parks without a permit, held that regulation was not unconstitutional invasion of freedom of speech and assembly guaranteed by Federal and State Constitutions since regulation was administered without discrimination. *People* v. *Nahman et al.*, 81 N. E. (2d) 36 (N. Y., July 16, 1948).

Rent Control—Certificate of Eviction—Landlord's Failure to Follow Administrative Procedure

Where landlord brought proceeding to compel Rent Commission of City of New York to issue certificate of eviction, or in the alternative, to declare the City Rent Law unconstitutional, held landlord's failure to show demand and refusal of Rent Commission to issue a certificate was fatal and that action for declaratory judgment could not be joined with one involving special proceeding. *Contincello* v. *Finkelstein et al.*, 81 N. Y. S. (2d) 905 (N. Y. S. Ct., Kings Co., July 28, 1948).

Sales Tax—Buyer's Liability to Pay to City Where He Failed to Pay Tax To Seller

Where trustee for bankrupt contested sales tax imposed by City of New York on purchases of materials and interest on such taxes, held that although tax is primarily imposed on buyer to be paid to seller at time of purchase, buyer must pay tax to city treasurer if he has failed to pay it to seller; however, buyer was not liable for interest on taxes after filing petition in bankruptcy. *Saper* v. *City of New York*, 168 Fed. (2d) 268 (U. S. C. C. A 2nd, May 25, 1948).

Sales Taxes—Validity of Ordinance Imposing on Tobacco, Alcohol, Rooms, and Entertainment

In certiorari to review ordinance imposing sales tax on all services relating to sales of tobacco, alcohol, rooms, entertainment and other services usually rendered at summer resorts, held that ordinance was based on proper classification as authorized by statute granting any city of fourth-class power to impose sales tax limited to certain classes of transactions. *Karins* v. *Board of Commissioners of City of Atlantic City*, 60 Atl. (2d) 246 (N. J, July 15, 1948).

Schools—Applicability of City Debt Limitations to Board of Education Where Separate Entities

Where City of Fargo and public-school corporation occupy same territory, comprise same area and population, but are separate corporate entities, held that each is qualified to incur separate indebtedness up to constitutional limit authorized for such subdivisions and neither can be bound by debt limitations of other. *Baldwin* v. *Board of Education*, 33 N. W. (2d) 473 (N. D., Aug. 2, 1948).

Sidewalks—Snow-Removal Statute—Liability of Abutting Owner to Pedestrian Injured by Fall on

In action by minor against property owner for injuries sustained from fall on icy sidewalk on ground that owner had violated District of Columbia snow-removal law imposing fine for failure to remove snow from sidewalk, held that property owner owes no duty to pedestrian to clear ice and snow from sidewalk since by wording of statute, only city could bring such action. *Radinsky* v. *Ellis*, 169 Fed. (2d) 745 (D. C. App., Apr. 12, 1948).

Taxation—Right of City as Creditor Against Bankrupt

Where City of Dallas filed claim for taxes upon personal property of party in bankruptcy which took place February 26, 1947, and assessment rolls of city were not approved by city council and assessment made until September 23, 1947, held that referee in bankruptcy properly denied city right to participate as a lien-holding creditor. *In re Lone Star Air Cargo Lines, Inc.*, 78 F. Supp. 481 (U. S. D. C. Tex., July 16, 1948).

Taxation—Validity of Ordinance Imposing Excise Tax on Fuel Oil

In attack on validity of city ordinance imposing excise tax on purchases of fuel oil within city and to enjoin city from collection of such tax, held that statute authorizing cities and towns to tax utility services or products in direct competition with such services did not enumerate fuel oil as such competitive service and city was without power under its charter to collect such taxes. *City of Orlando* v. *Johnson*, 36 So. (2d) 209 (Fla., June 25, 1948).

Taxation—Statutory Exemption For Railroad Buildings Used to House Laborers as Railroad Function

Where Town of West New York assessed buildings of railroad which were used to house itinerant Mexican laborers who were employed by railroad during war because of labor shortage, held that such use was an appropriate railroad function bringing buildings within statutory exclusion from local taxation. *New York Cent. R. Co.* v. *Division of Tax Appeals*, 60 Atl. (2d) 619 (N. J., Aug. 10, 1948).

Taxicabs—Denial of Certificate Of Public Convenience Where Existing Company's Service Sufficient

Where public-utility commission denied application for certificate of public convenience for plaintiff to operate one taxicab available only to customers hailing same on streets of City and County of Philadelphia, held there was no abuse of discretion by commission in refusing application on basis that existing taxicab company was furnishing sufficient service and maintaing telephone service in connection therewith. *Aizen* v. *Pennsylvania Public Utility Commission*, 60 Atl. (2d) 443 (Pa., July 23, 1948).

Trailer Camp—Validity of Ordinance Levying License Fee of Two-Thirds Of Owner's Gross Revenue.

Where borough ordinance required owner or operator of trailer camp to pay monthly fee of $10 per trailer, which fee would constitute two-thirds of gross revenues derived therefrom and would result in deficit if added to regular operating expenses, held that ordinance was invalid because it was unreasonable, oppressive, and confiscatory. *Hoffman* v. *Borough of Neptune City*, 60 Atl. (2d) 798 (N. J., August 10, 1948).

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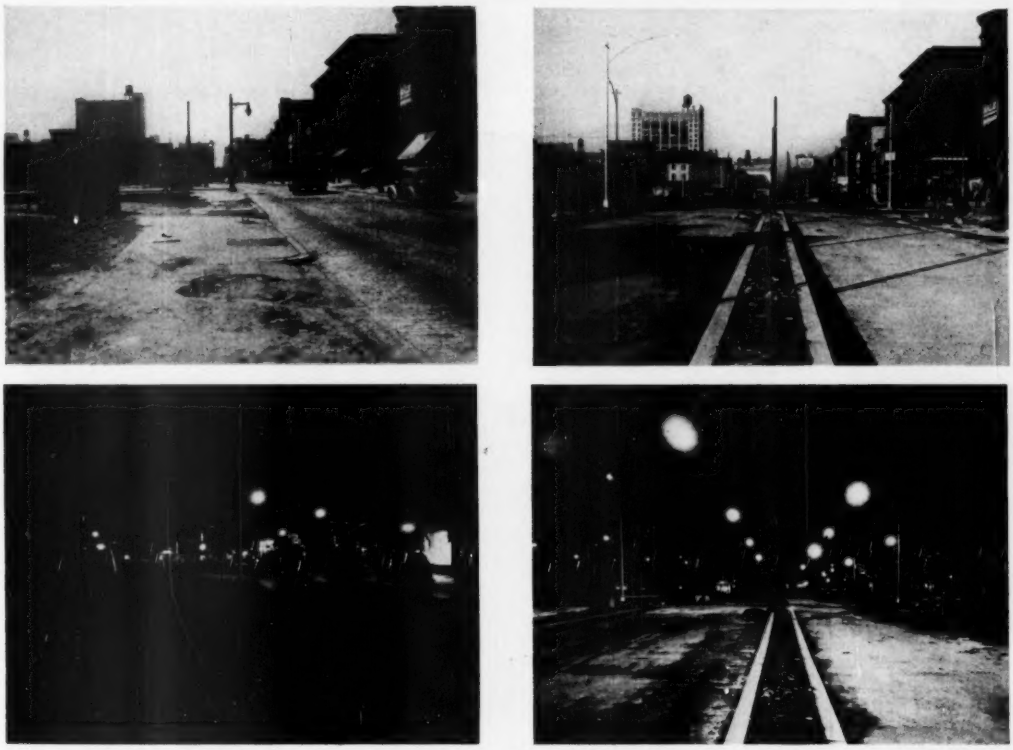

Day and night views of the Vine Street approach to the Delaware River Bridge before and after street and lighting improvements.

Philadelphia Relighting

By BERNARD SAMUEL, *Mayor*
Philadelphia, Pa.

A FEW weeks ago when I closed an electric switch and flooded the Vine Street approach to the Delaware River Bridge with "new light," I called the event a major step in Philadelphia's self-assigned task of civic improvement —a step we confidently expect to pay off for our citizens and our businessmen in greater safety and prosperity.

The Vine Street Improvement Project, which calls for a complete rebuilding and relighting of the main vehicular approach to the Delaware River Bridge extends from the bridge plaza (Franklin Square) across the city to the Benjamin Franklin Parkway, a distance of 1¼ miles.

The use of mercury-vapor lamps in the redesigning of Vine Street marks a revolutionary change in street-lighting standards in this city. Not only will the lighting be much better—an important factor in after-dark highway safety—but this improvement will give the city a modern standard of street lighting at a low cost.

The new lamps, designed and built by the Westinghouse Electric Corporation in its Cleveland, Ohio, lighting division, give twice as much light as any other street light now in the city. Their life is two or three times as long as the previously-used incandescent lamps. They use less than half as much electric power as present lamps. Their greater candlepower and efficiency mean fewer units and lower annual costs.

Relighting of the highways and main boulevards within the city is one of the most important aspects of the program of civic improvements this administration is undertaking. City governments all over the country are coming to recognize that proper lighting of their streets is one of the cheapest investments they can undertake for the public good. While the primary purpose is to reduce traffic accidents, it also has several other very important results. Good lighting discourages delinquency, vandalism, and other types of crime

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2 HOURS
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PLUS VALUES!
These two words explain why Dual Parking Meters have won the carefully considered acceptance of hundreds of cities and towns throughout the nation, only a few of which are indicated here. For full details on DUAL AUTOMATICS send for Bulletin DU-502.
THE DUAL PARKING METER COMPANY
A Subsidiary of The Union Metal Manufacturing Company
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....YOUR BEST ANSWER TO EVERY PARKING PROBLEM

that flourish in darkness. It can save lives and property damage, reduce criminal and traffic-court costs, and encourage civic pride, so necessary an ingredient of civic progress.

Good lighting is also a distinct business asset to a city, as I am sure the people of Philadelphia will discover from this adventure in progress, for it fosters higher and more stable real-estate values and helps build better commercial districts.

Philadelphia's first city-owned street lighting is turned on by Mayor Samuel (center) in ceremonies at the Vine Street Improvement Projects. Others participating are Thomas E. Buckley, Director of Public Works (left), and Emery W. Loomis, Middle Atlantic District Manager, Westinghouse Electric Corporation.

Philadelphia Engineer Explains New Lights

AT a dinner tendered by the Westinghouse Electric Corporation at the Bellevue-Stratford Hotel to city officials and business leaders, Samuel Baxter, Assistant Chief Engineer of Philadelphia's Bureau of Engineering, said:

> In determining the type of lighting we should use in making this break with the methods of the past, we settled on mercury-vapor lamps for the following reasons:
>
> The short-arc mercury-vapor light yields 21,000 lumens (units of light) compared with 10,000 lumens per unit for the city's largest incandescent lamp. Thus each new lamp does the work of two old ones.
>
> The actual efficiency of mercury vapor is such that it yields 47 lumens of light per watt of power consumed, compared with only 19 lumens per watt in our best incandescent type. The average life of these mercury-vapor lamps is two to three times that of the incandescent lamp, which in view of the smaller number required, means lower maintenance costs for the city.
>
> Because of the design of the fixture itself, the light will be directed in useful channels up and down the street, rather than equally to all points of the universe as in our present lighting. This scientific distribution of light is made possible by the use of special reflectors and Holophane refractors.
>
> The street will be lighted uniformly by the so-called "area methods," which means that there will be little difference in pavement brightness between the maximum and the minimum points of illumination on the street.

Mr. Baxter explained that the new lamps "make" their light by passing a current of electricity through a small quantity of mercury vapor imprisoned under pressure in a tiny, cigarette-length quartz tube. When the electrons in the stream of electricity collide with the packed particles of mercury, they cause the mercury to give off an intense glow. By keeping the mercury vapor under pressure in the tube, lighting engineers have overcome the original characteristic of mercury lamps, that is, of giving an unflattering blue-green light which distorted color values for the human eye. High-pressure mercury lamps yield a distinctive blue-white with an attractive sparkling effect.

The 56 lamps installed on Vine Street are mounted 33 feet above the street. Tapered steel poles are placed at intervals of 70 feet, and the lights are hung on the outer ends of 12-foot curved upsweep arms attached near the tops of the poles. The greater height cuts glare to a minimum, while the longer bracket places the light out over the street surface.

Lighting for Multi-Use Sports Areas

By **FRANCIS D. WYATT**
Electrical Engineer
Chicago Park District
Chicago, Ill.

WHETHER a park system is large or small, it faces the same problems in night lighting for its outdoor sport and recreational areas. The question arises as to the type of equipment, units, size, layout, and footcandle levels that should be used. Before these questions can be answered, the type of area and use must be known. Most outdoor sport areas can be classified into one of two general categories — the fixed or particular sport area and the multiple-use area.

The fixed-area sport is a special or particular game where the nature of the permanent facilities or ground preparation peculiar to the game precludes the playing of any other game on the same ground. The Illuminating Engineering Society Sports Lighting Committee recommends the following footcandle levels for these sports:

	Footcandles
Archery (on vertical target surface)	
Tournament	10
Recreational	5
Bowling on the Green	
Tournament	10
Recreational	5
Handball	
Tournament	30
Club	20
Recreational	10
Horseshoes	
Tournament	10
Recreational	5
Swimming Pools	
General	10
Under water, outdoor	3 watts per sq. ft. of pool surface
Tennis (Lawn)	
Tournament	30
Club	20
Recreational	10

For each of these games standard layouts, with detailed location, number, and size of poles, and number, size, and type of floodlights, are available from any of the floodlight manufacturers. Generally these layouts consist of steel or wood poles with open or enclosed 1,500-watt floodlights. Enclosed floodlights are generally used where poles are high, and maintenance is difficult. In areas where the lighting units are subject to malicious damage, it is desirable to use the newer type of floodlights with a hardened cover glass to withstand impact. Open floodlights in smoky or industrial areas should be of the porcelain-enamel type to resist corrosion. The same type of equipment is used for lighting multiple-use areas.

Multiple-use areas are those on which seasonal sports can be played on the same ground, thus keeping the area in use most of the year. An important factor in lighting these areas is the level of artificial illumination which should be provided. I.E.S. recommendations for lighting each of these particular sports are listed on page 153.

GOOD AT SAVING LIVES...

and money, too!

IN CROWDED business districts, in residential areas, on bridges, busy highways . . . *wherever* nightime hazards exist . . . you'll find Union Metal tapered steel lighting standards on the job helping to protect lives and property. They do it well because they provide the proper mounting heights for peak lighting efficiency, they are designed to distribute abundant light *on the street* where it is most needed, and they have strength to spare for uninterrupted service in all kinds of weather.

As to saving money, these sleek, all-steel standards last for years *and years* with a very minimum of maintenance. Moreover, easy, greatly simplified installation cuts costs right from the start. You'll be ahead on *every* count with these modern attractive standards. For complete details, get in touch with The Union Metal Manufacturing Co., Canton 5, Ohio.

Deliveries when you need them.

Union Metal tapered steel lighting standards contribute to dependable, efficient lighting on famous Charter Oak Bridge and its approaches, seven miles of safe driving between Hartford and East Hartford, Conn.

UNION METAL

Largest Producers of Street Lighting Standards

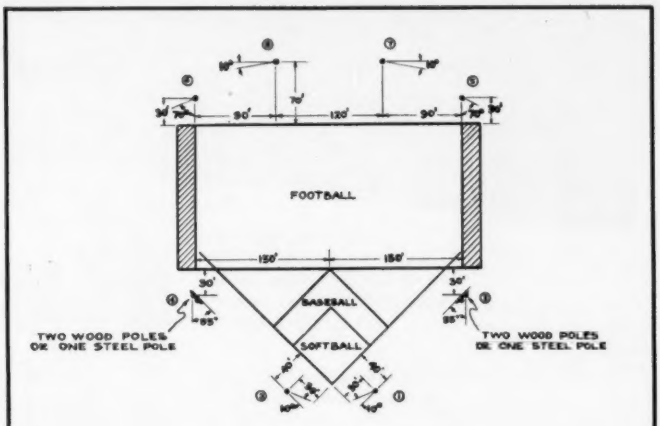
		Footcandles	
		Infield	*Outfield*
Baseball			
	Major League	150	100
	A A and A A A League	75	50
	A and B League	50	30
	C and D League	30	20
	Semipro and Municipal	20	15
Softball			
	Professional and Championship	50	30
	Semipro	30	20
	Industrial League	20	10
	Recreational	10	5
Football			
Class	Distance from nearest sideline to farthest row of spectators		
I	Over 100 feet		100
II	50 to 100 feet		50
III	30 to 50 feet		30
IV	Under 30 feet		20
V	No fixed seating facilities		10
Soccer			
	Professional and college		30
	High School		20
	Athletic Field		10
Skating			
	Rink		5
	Park, lagoon or pond		1

These lighting levels are determined largely by the size of the ball, the speed it travels, and the distance of the audience from the playing field. A smaller, faster ball requires more light for equal visibility than a larger, more slowly moving ball. One of the most critical seeing tasks in night sports is presented by baseball, from the standpoint of both the player and audience.

Standard layouts are available for baseball, softball, football, and, as shown here, a multi-sport field. You will note that baseball or softball can be played on the same field without rearrangement of floodlights or additional poles, and since the class of play is recreational rather than professional there should be no objections to the two overlapping diamonds.

The football field can be laid out diagonally across the outfield with only minor readjustments of lighting. Ice skating is not a critical seeing task and the field can be adequately lighted with one-half the poles and one-third of the total number of floodlights.

The bulk of park play is in the recreational class and therefore would benefit more from a large number of fields lighted for many sports than a few fields well lighted for one type of game. This also provides a greater opportunity for the inexpert, occasional, or new player to get in the game.

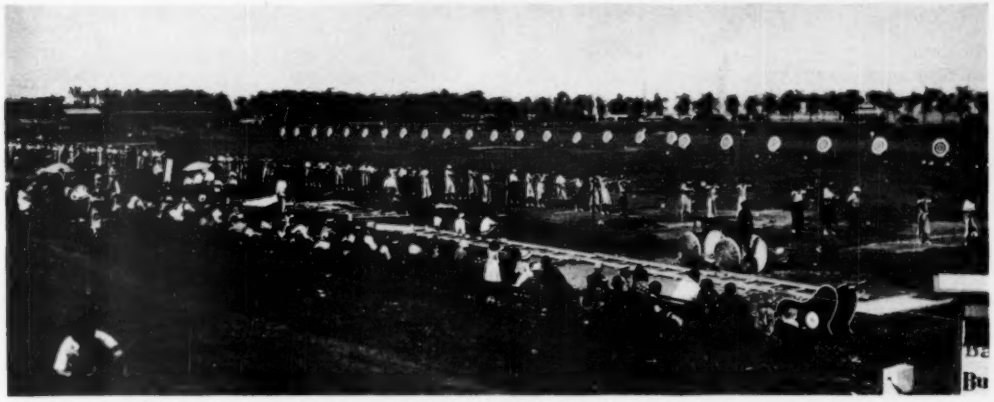


FLOODLIGHT INSTALLATION AND OPERATING DATA

POLE NO.	MTG HGT (ft)	OPERATE ALL LIGHTS FOR BASEBALL			OPERATE LIGHTS AS FOLLOWS					
					for Football			for Softball		
		Lights* per pole	Narrow Beam	Wide Beam	Lights* per pole	Narrow Beam	Wide Beam	Lights* per pole	Narrow Beam	Wide Beam
1	100	14	10	4	10	10	0	4	0	4
2	100	14	10	4	10	10	0	4	0	4
3	80	22	14	8	14	9	5	8	5	3
4	80	22	14	8	14	9	5	8	5	3
5	80	12	6	6	12	6	6	6	6	0
6	80	12	6	6	12	6	6	6	6	0
7	80	12	8	4	12	8	4	6	6	0
8	80	12	8	4	12	8	4	6	6	0
Total.....		120	76	44	96	66	30	48	34	14

*1,500-Watt.

Lighting layout and data for semipro baseball, Class A softball and football, all on one field.

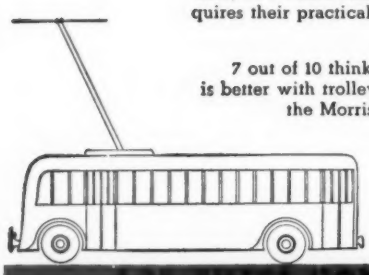


Daytime need for sports is conceded; but sports are also needed in the evening when more people can participate.

7 out of 10 people **expressing an opinion** in a city-wide survey* prefer electric transit vehicles—PCC cars and trolley coaches.

9 out of 10 **like** the new trolley coaches on the Morris-Tasker line† . . . where heavy traffic requires their practical application.

7 out of 10 think the **service** is better with trolley coaches on the Morris-Tasker line.

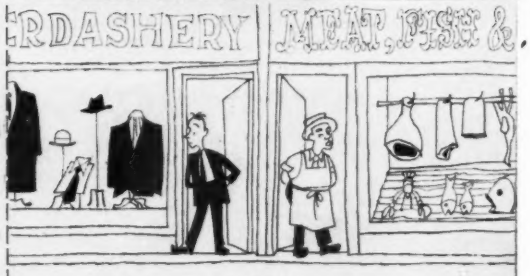


*1945, Opinion Research Corp. †1947, National Analysis, Inc.

ARE THESE CONDITIONS TRUE IN YOUR CITY?

"This traffic problem has to be solved!"

"And without spending millions for freeways and superhighways."



"All those cars and no customers! This neighborhood is blighted!"

PERHAPS YOUR CITY IS ONE OF THE HUNDREDS SUFFERING FROM TRAFFIC CONGESTION AND BLIGHT CONDITIONS. ELECTRICS ATTRACT MORE RIDERS AND COST LEAST TO OPERATE. PLEASE WRITE US. WE ARE ANXIOUS TO HELP. Apparatus Department, General Electric Company, Schenectady 5, N. Y.

GENERAL ELECTRIC

Meters to Pay for $4,000,000 In Bonds for Parking Lots

By WILSON McGEE
Miami Herald
Miami, Fla.

CITY MANAGER CLAUDE RENSHAW and the City Council of Miami Beach, Fla., will seek legislative authority this May to issue $4,000,000 in revenue bonds to complete its master parking plan. The monies, to be spent over a four-year period, will add 4,000-car capacity to the 3,439 off-street and on-street parking facilities made available since the program was launched in 1938 with the modest purchase of 140 parking meters.

Renshaw says that the financing has already been arranged to be amortized over a 20-year period solely from parking-meter revenues. "Unless we run into a depression, our experience leads us to believe that the issue can be amortized possibly in 12 years," says the man who planned the four-point program, helped the City Council fight off merchant and taxpayer opposition to it, and is now watching the plan pay dividends to his city.

Miami Beach's traffic problem was unique. A city normally with a population of 45,000, it swelled to 100,000 during the winter season. But on top of its own traffic came an outpuring of 100,000 cars a day over the three causeways that connect it to the mainland as residents of Miami and other Dade County municipalities "came over for a swim." The result was that Miami Beach, with its less than six square miles of water-surrounded land, was facing a traffic problem representative of a city of 250,000.

In December of 1945, Renshaw remembered the almost hopeless confusion and congestion that existed prior to 1942 before the war had thinned out the vehicles and converted Miami Beach literally into an army camp, where thousands of air force men were trained and quartered on the grounds of swank ocean-front hotels.

The City Manager outlined this plan to a Council that faced the petitions and wrath of angered merchants who saw in it "threats" to their businesses:

1. Use of a portion of a municipal golf course north of Lincoln Road (the city's world-famed shopping center) and other city-owned property for parking purposes;

2. Acquire off-street parking areas in congested districts where city property was not available, the purchases to be financed by a $300,000 bond issue;

3. Provide parking stations at intervals in congested areas where bonded attendants would take charge of cars, park them in city-provided areas and return them to the owner at the original station or at any other station at which the owner might call;

4. Install meters on business streets near the ocean and on other business streets where off-street parking has been or will be provided, and in off-street parking areas.

"Unless a better plan is offered,"

Lincoln Lane parking lot—1,000 meters.

Surf-side parking lot—300 meters.

Collins Park lot—200 meters.

Michigan Avenue parking lot—87 meters.

Go To It . . . with

PRISMO

You can't bring everything back to the shop for reflectorization. Bridge abutments don't budge easily, and an underpass has no place in a sign shop. But no matter what it is, or where it is, your reflectorization problem is solved by the ready portable Prismo Sign Kit.

The Prismo Sign Kit and the Prismo method of vertical application make reflectorizing immovable objects in the field just a matter of "Go to it"! It's easy! It's quick! It's economical!

Roads all over America are being made safer with the Prismo Sign Kit. Prismo reflectorized culverts, bridge abutments, barricades, underpass walls, guard rails, guard posts, and other roadside aids all over the country prove that "Prismo is outstanding in the field!"

IT'S EASY! HERE'S HOW!

The lightweight Prismo Sign Kit can be transported anywhere It is compact and complete!

Applying the special Prismo Binder is as easy as the simplest paint job. **Spray** or **brush on** the binder in smooth even strokes.

Spray on the Prismo Spheres with the Prismo Hand Gun. Its simple pump operation evenly distributes the tiny optically clear spheres on the wet binder which "grips" them in place. Reflectorization is finished!

Prismo markings never sleep. By day they **stand out clear and distinct . . . readily discernible . . . easily interpreted.**

By night, Prismo becomes a glowing sentinel, brilliantly revealing every hidden danger. Its speedy application, wider angle of reflectivity, and longer lasting qualities make Prismo *the* ideal reflective coating for vertical application.

Write today for
Prismo Bulletin 547

THE PRISMO SAFETY CORPORATION

HUNTINGDON, PA.

Renshaw said in a letter to the Council, "this one should be given a fair trial. If it proves fantastic and impractical, it should be abandoned forthwith and another one involved. No time should be lost—something should be done *at once.*"

Merchants agreed to withdraw opposition, and in 1946 a $300,000 bond issue was approved by freeholders after the city had conducted a strenuous educational campaign.

The Plan Worked

By partial use of city property, the city now has four off-street lots with a capacity of 1,367 cars. All are completely metered with multiple-hour Miller parking-lot meters of varying time-rate combinations. Meters on the three smaller lots are 6-nickel, 9-hour type which give 90 minutes for a nickel. The big Lincoln lot with almost 1,100 meters is set up to serve the widest range of demands of the public. Its first four lanes (200 spaces) closest to the stores are equipped with 2-hour meters using 10 pennies or 2 nickels. The next 6 lanes (500 spaces) have 6-nickel, 9-hour meters giving 90 minutes for a nickel, and the last 3 lanes (400 spaces) give the maximum of 10 hours for 5 nickels. The beautifully landscaped lots, far from being eyesores with a resulting devaluation of surrounding property, are assets to the merchant, the shopper, and the city.

Lots and on-street parking meters have regulated traffic and produced $159,565 for the last fiscal year ending September 30, 1948. The money went into the parking-meter fund to pay off meter costs, construction, landscaping, and operational expense of $82,867.59. To date, *the city still has* $280,000 *of its original bond issue left.* Revenues have been so high that some land parcels have been acquired from the parking-meter balance, making it *unnecessary to touch the bond issue money.*

New $4,000,000 Needed for Land

Because of large estates, more than 350 hotels, and 22,000 apartment units that make it the world's greatest resort city, and because the whole is jammed into slightly more than 4,000 acres, remaining parcels of land are few, scattered, and expensive. Most of the cost of providing 250 square feet per car-parking space is inland. The cost so far has been about $750 per car-parking space; and with land value rising, prices may boost this cost even higher.

High costs also resulted in Mr. Renshaw's shelving for the present the phase of his program covering the parking-lot-attendant service. "Labor costs are too high. But I still believe that motorists want a service that will take their cars and deliver them at any parking area in the city. A service charge of 25 cents plus the parking charge should meet the cost during normal times, providing full personal and property liability insurance."

And the man who led his city to pioneer in city-owned parking lots and such conveniences as the 9-hour meter for store owners and employees may be right. Parking events have yet to prove him wrong.

Asheville's New Interconnected Traffic-Signal System

By CHARLES W. DERMID
Director of Public Safety
Asheville, N. C.

DURING the years prior to 1947 the City of Asheville, N. C., controlled the traffic in the business district by the use of induction-motor controls. One of these controls operated as many as five signal lights. These lights were operated, simultaneously, on a fixed-time cycle, regardless of volume or density of vehicles. In studying our traffic congestions we found that this type of controller added to the congestion in the business district. We needed controls that would expedite the movement of vehicles. The traffic was congested as it left one circuit of traffic lights and entered into the next circuit, as there was no relation between the induction-motor controls. This type of controller is the most common, and traffic lights were added as found necessary. The same fixed-time cycle operated continuously without regard to the density of flow.

In studying the various types of signal control, the flexible progressive system was found to be the most effective. The city purchased one master controller and seven secondary controllers from The Marbelite Company of New York. In this system of signals, all local control units, called secondary controls, are interconnected by electrical conductors and are supervised by a master control unit at one point in the system. A secondary controller is set according to the characteristics of the flow of traffic at one particular intersection. By being interconnected to the master controller it remains in the proper synchronization with other secondary controls. The master control gives the system positive time relationship between all interconnected controllers.

Flexibility of the System

By either manual operation or time-clock switches contained in this system, the following features are obtained: Shutting-down signal at any or all intersections; flash-signal operation at any or all intersections; changes in length of total time cycle for entire system; changes in offset regulation between secondary controllers; changes in interval timing by the transfer of one movement program to another program at different hours during the day to meet the changing flow of traffic. We now use two programs: one for the

Asheville's Marbelite combination master and secondary controller, with J. C. Mathews, City Electrician; A. Diebold, The Marbelite Company, Inc., and Charles W. Dermid, Director of Public Safety.

IF your city has no system of metered parking
IF yours is an obsolete parking meter installation
IF you have any unsolved parking problem
IF you have an off-street parking problem

YOU SHOULD learn all about PARK-O-METER

THE NEW CONVERTIBLE MODEL G

The new Convertible Model G PARK-O-METER embodies every feature . . . every advantage . . . and meets every condition . . . suggested by traffic engineers and municipal officials in cities and towns of all sizes all over the nation. It is the most complete, most dependable and most flexible parking meter ever designed. It will serve your traffic needs today, tomorrow and for years to come as it is convertible *to meet conditions as they may change.*

If your city has a parking problem on-street or off-street . . . whether you have tried metered parking or not . . . ask our traffic consultant for assistance. There is no obligation on your part.

OFFERS YOU 21 BUILT-IN ADVANTAGES

- DIE-CAST CASE
- RED ARROW COIN-SLOT
- GASKET SEAL ALL AROUND
- 50-YARD VISIBILITY
- THEFT PROOF COIN DROP
- SLUG-DETECTOR WINDOWS
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- WORK-TABLE MECHANISM DOOR
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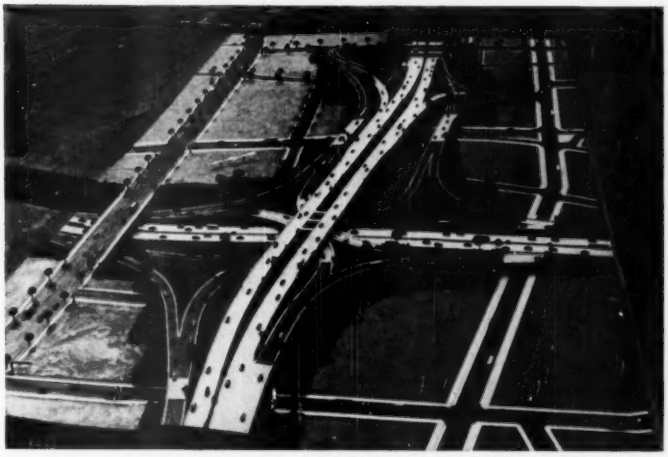
- COMPLETELY AUTOMATIC OPERATION
- UNIVERSAL COIN-TIME SETTINGS
- DEMOUNTABLE UNIT ASSEMBLY
- SNAP-OFF PRECISION-BUILT TIMER
- VISUAL TROUBLE SIGNAL plus COIN-SLOT LOCK
- FIX-FAST UNIT REPAIR
- TAMPER-PROOF CASH REGISTER
- CONVERTIBLE from standard wipe-off reset to cumulative time
- CONVERTIBLE from one-hour to short-time or 2-hour time setting
- CONVERTIBLE from single coin to multiple coin operation
- CONVERTIBLE from sealed coin box to automatic coin dumping collection

incoming and outgoing traffic, and one for the medium traffic.

We have found that this system allows groups of vehicles to move through the business district at a given rate of speed without stopping, and that it has greatly reduced the congestion by moving the vehicles at a more rapid rate of speed. We plan to add secondary controls to this system until each intersection has an individual control. When this is accomplished, we will have real flexibility in regulating the flow of traffic.

Four-Level Grade Separation in Los Angeles



Scale model built by E. R. Bradt of the California Bridge Department.

WHAT promises to be the world's busiest crossroads is to have a four-level grade separation. It is at the intersection of Hollywood and Arroyo-Seco Parkways in—"naturally," writes W. N. Beadle, vice-president of the Byron Jackson Company—Los Angeles, Calif.

Because there was no precedent for such a structure, E. R. Bradt of the California Bridge Department built a scale model 4½ by 7 feet with 1 inch equal to 30 feet. The complete view may look complicated, but it will be plain driving for the motorist. Getting in and out will be entirely to the right and signs will tell where to turn.

The real thing is going up now. It requires 3,500,000 pounds of reinforcing steel, and $1,296,595 was the contract price of James I. Barnes Construction Co., Santa Monica, Calif. Besides the traffic convenience there is a right-of-way economy in the design of this four-level structure. It is located at the north end of the central business district in an area of heavy crosstown as well as cityward traffic with plenty of volume at this intersection of major parkways.

The four-level grade separation provides a simple turn for all traffic improvements, in the direction in which each wishes to go. The basic feature is that the four separate roadway levels are so arranged as to pass one another at one point in a single bridge structure.

The lowest level is for the two 26-foot, one-way roadways which handle the connections from the Harbor-Arroyo Seco Parkway to the Hollywood Parkway. The second level is the Harbor-Arroyo Seco Parkway, which is a six-lane freeway with central dividing strip. The third level is for the two 26-foot, one-way roadways handling exchange from the Hollywood Parkway to the Harbor-Arroya Seco Parkway. The fourth, or highest level, is the Hollywood Parkway, a six-lane freeway with a 24-foot central dividing strip.

The resulting bridge structure is 69 feet in height from the lowest roadway to the highest roadway. It is proposed to construct the four-level bridge of reinforced concrete, consistent with other near-by structures planned for the parkways. The four-level grade separation, which is believed to be a forward step in highway design, is a development of an idea first suggested by District Location Engineer W. H. Irish. It is a design applicable to other sites, furnishing a compact, efficient, and safe traffic exchange system.

Old-Fashioned Traffic Signals

THE subject of "old-fashioned" traffic signals brings to mind the reason why many systems have become obsolete. Many cities are using traffic-signal systems installed at the time when Ford was still building his Model "T" car, Chrysler was just introducing four-wheel brakes and the three leading small cars were being manufactured with four-cylinder motors. Red, green and various other colored neon advertising signs were not in common use to confuse signal indications.

Changes in traffic conditions have been gradual and perhaps not fully realized. Recalling the conditions under which many traffic-signal systems were installed will, by comparison, give a measure of how old-fashioned they have become. The older traffic-signal systems were a great advance over individual-officer traffic control, or no traffic control at all, but with the change in automobiles from two-wheel brakes to universal adoption of four-wheel brakes, from four-cylinder to six- or eight-cylinder cars, with improvement in motors and their resultant quicker acceleration, combined with greatly reduced braking distances, all show how the old-fashioned signal system cannot efficiently handle modern traffiic.

Flexible Control Available

Traffic-signal equipment has been constantly improved to meet the changed conditions, and systems are available for maximum efficiency in the control of modern traffic; but many cities have not yet replaced or modernized their obsolete systems.

Signals are not intended to replace the need of such extensive improvements as "clover-leaf" separations, elevated highways, and other street reconstruction that takes time and money, but modern traffic-signal systems provide quick relief and effective cure for many problems. It is seldom realized how obsolete and inefficient many old traffic-signal systems are, and how greatly the traffic problems could be relieved by revamping or replacing old-fashioned equipment.

The addition of multiple-signal indications is frequently very desirable to provide good visibility at greater distances and to get out of line of illuminated backgrounds against which signal indications are not clearly visible.

The value of street areas warrants employing every means for their most efficient use, and modernizing traffic-signal systems with the extremely flexible equipment now available, brings benefits of highest value.

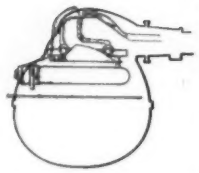
J. N. PAUL
The Marbelite Co., Inc.
New York, N. Y.

We believe this to be

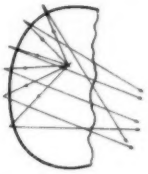
—the most significant development in mercury street lighting in 13 years!

Form 109 luminaire with Holophane refractor spun-sealed to Alzak* aluminum refractor

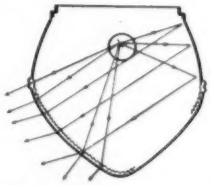
***Really* NEW** This is the first luminaire ever designed to take full advantage of the light produced by a horizontally burning mercury lamp—at the same time its uniformly lighted refractor produces more comfortable visibility.



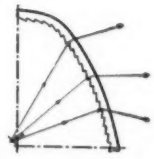
LAMP is placed high in the reflector to shield it from drivers. Arc-centering magnets assure full life from large mercury lamps when burned horizontally.



REFLECTOR has every square inch of its ovate surface carefully designed to direct the light downward and laterally in an asymmetric pattern. Reflected light passes around lamp for more efficient utilization.



LIFTING PRISMS accurately molded into the refractor lift the light sending it along the roadway. Vertical control restricts the candlepower above 72½ degrees on the driver approach sides for driver comfort.



TURNING PRISMS in the refractor redirect light from the house side of the luminaire into the roadway pattern. General Electric pioneered this reflector—prism combination for vertilateral control.

The Form 109 luminaire will burn the 10,000-lumen AH-5, 16,000-lumen EH-1, and 21,000-lumen FH-1 mercury lamps. Also, it can be adapted for large filament lamps—increasing, greatly, the possibilities of standardization. For details, ask for Bulletin GEA-5142. ***Apparatus Dept., General Electric Co., Schenectady 5, N. Y.***

*Trade mark of the Aluminum Co. of America

More for Your Street-Lighting Dollar!

GENERAL ELECTRIC

Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in recent issues of *The American City*.

C. H. Barnhardt
New Bern, N. C.

C. Darwin Middleton
Baytown, Texas

Mrs. W. J. Brockman
Beaumont, Texas

Bertill W. Johnson
Lebanon, Mo.

Joseph A. Warren
Ashland, Wis.

BREWER A. BILLIE, manager of Astoria, Ore., has been re-appointed.

FRED M. BOONE, manager at Sapulpa, Okla., 1932-45; Neosho, Mo., 1945-47, became the first manager of Colorado City, Texas.

ERWIN C. BRADON, JR., manager at Kings Mountain, N. C., since February 1948, succeeded KENT MATHEWSON at Asheboro, N. C.

HOWARD W. BROD, water and street superintendent at Sierra Madre, is the first manager for San Carlos, Calif.

R. J. BRULE, manager at Navasota, Texas, 1926-46, succeeded WILLIAM P. BRISCOE at Harlingen, Texas.

WILLIAM S. COBURN, Giles County engineer, Pearisburg, Va., is the first manager of Anne Arundel County (Annapolis) in Maryland.

JAMES O. CONVILL, manager at Astoria, Ore., 1934-40; 1945-49, is the first manager at Corvallis, Ore.

R. L. COOPER, manager at Albuquerque, N. M., 1926-31; Port Arthur, Texas, 1932-37, 1945-48; Clovis, N. M., April 1948 to date, succeeded J. H. BENDER at Tucumcari, N. M.

W. O. CUTHBERTSON, manager at Newton, Kans., 1939-45; Abilene, Kans., 1945 to date, received the appointment at Bend, Ore.

SAUL B. JANDREAU succeeded PETER E. JANDREAU at St. Francis, Maine.

OREN L. KING, manager at Montrose, Colo., 1942-47; Pendleton, Ore., 1947-49, succeeded M. DEANE SEEGER at Eugene, Ore.

WINFIELD F. LEA has succeeded his father, HARRY C. LEA, at Aspinwall, Pa.

T. H. LOVE, Seminole County shop superintendent, succeeded J. ORVILLE BUMPUS at Konawa, Okla.

GEORGE MACPHAIL is acting manager at Bay City, Mich.

KENT MATHEWSON, manager at Asheboro, N. C., 1947 to date, will be the first manager at Martinsville, Va.

STEVE MATTHEWS, manager at Borger, Texas, 1939-1940; Pampa, Texas, 1940-43, 1947 to date, succeed M. R. SMITH, JR., at Lubbock, Texas.

JACK MAYNARD, manager at Covington, Ky., 1940-44; Milford, Del., 1944-46, received the appointment at Hazard, Ky.

D. C. MOODY succeeded CHESTER ROBERTSON at Cornelia, Ga.

MORRIS OLSEN is acting manager at Alpena, Mich.

R. G. PEPIN received the appointment at Pampa, Texas.

W. E. REYNOLDS, former manager 1919-27 and 1937-43, is back again as acting manager at Alma, Mich.

ROBERT A. SLONE, manager at Flushing, Mich., since January 1948, is the first manager for Rochester, Mich.

GEORGE W. STEVENS, chief administrative officer, became the first manager at Torrance, Calif.

HERMAN ZIMMERMAN succeeded FRENCH H. SMITH at Lexington, N. C.

CLARENCE E. RIDLEY
Director
International City Managers' Association

Contractors Urge Advance Planning Of Public Works

AT their meeting in New York City, February 28 to March 3, the Associated General Contractors of America adopted a resolution which declared that "The orderly and economical construction of public works can be accomplished best in accordance with long-range, planned programs fitted to the needs of the nation and its communities." The resolution recommended that Congress once again appropriate funds for federal loans to state and local governmental agencies for defraying the costs of preparing plans and specifications for the future construction by the contract method of essential public-works projects.

New Orleans Host To National Recreation Congress in September

FOR the first time in twenty years the National Recreation Congress will be held in the Deep South. For five days, Monday, September 12, through Friday noon, September 16, leaders—professional and volunteer—from all parts of the nation will gather in New Orleans to exchange information and experience on many phases of recreation. There will be discussion meetings, addresses by outstanding leaders, demonstrations, exhibits, consultation service, and other helpful recreation service for delegates.

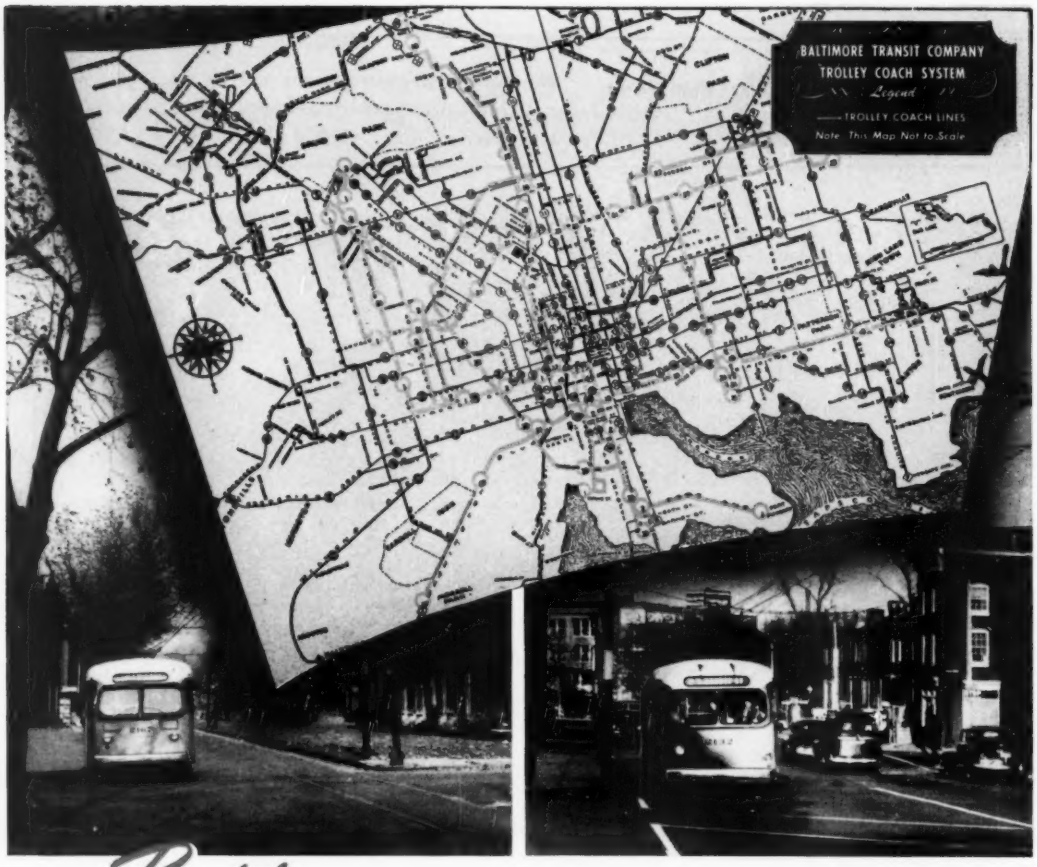
There has been a real awakening of interest in the South in public recreation, and the Recreation Congress is expected to serve as a springboard for even greater expansion of recreation service for the people of that area.

The public recreation program of New Orleans being developed under the leadership of Mayor deLesseps S. Morrison (President of the American Municipal Association) is receiving nation-wide notice. Many delegates are anxious to see this development and will take the opportunity to visit his picturesque city.

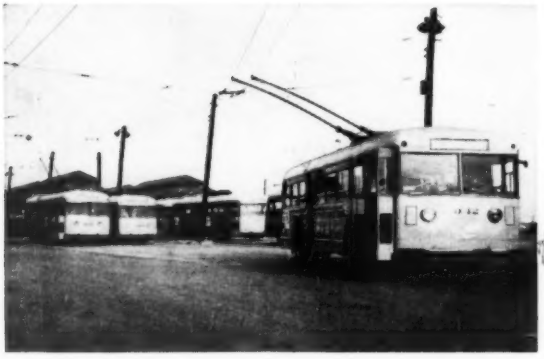
Readers of THE AMERICAN CITY are cordially invited to attend all or part of the Congress. Representatives of various municipal departments concerned with recreation will be especially welcome.

We shall gladly send further information to anyone interested.

T. E. Rivers, *Secretary*
National Recreation Congress
315 *Fourth Ave.*
New York 10, *N. Y.*



Baltimore Transit Company converts three more lines to TROLLEY COACH Operation



Within the past few months the Baltimore Transit Company has converted three more of its main streetcar lines to trolley coach service. Sixty-three new 44-passenger trolley coaches were purchased for the operation of these lines. BTC now operates 190 of these modern, rubber-tired electrics over six main transit routes, totaling 71.4 round trip miles.

TROLLEY COACH AND STREET CAR
Ohio Brass
MATERIAL AND CAR EQUIPMENT
MANSFIELD, OHIO
2955-T
CANADIAN OHIO BRASS CO., LTD.,
NIAGARA FALLS, ONTARIO

Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

April 7—Great Falls, Mont.
MONTANA SEWAGE WORKS ASSOCIATION. Annual Meeting (Civic Center). Sec., H. B. Foote, State Board of Health, Helena, Mont.

April 8-9—Great Falls, Mont.
AMERICAN WATER WORKS ASSOCIATION—Montana Section. Annual Meeting (Civic Center). Sec., C. W. Brinck, State Board of Health, Helena, Mont.

April 11-13—Little Rock, Ark.
ARKANSAS WATER AND SEWAGE CONFERENCE. Annual Conference (Hotel Marion). Sec., Harrison Hale, 118 Chemistry Bldg., Fayetteville, Ark.

April 20-22—Indianapolis, Ind.
AMERICAN WATER WORKS ASSOCIATION—Indiana Section. Annual Meeting (Hotel Lincoln). Sec.-Treas., C. H. Bechert, Room 217, Underwriters' Bldg., Indianapolis, Ind.

April 21-22—Hutchinson, Kans.
AMERICAN WATER WORKS ASSOCIATION—Kansas Section, and FEDERATION OF SEWAGE WORKS ASSOCIATIONS, Kansas Section. Annual Meeting (Hotel Bisonte). Sec., Sewage Works Assn., Dwight F. Metzler, Room 2, Marvis Hall, Lawrence, Kans.

April 21-22—Lincoln, Nebr.
AMERICAN WATER WORKS ASSOCIATION—Nebraska Section. Annual Convention (Hotel Cornhusker). Sec., John W. Cramer, Fulton & Cramer, 922 Trust Bldg., Lincoln 8, Nebr.

April 25-27—Quebec, Canada
AMERICAN WATER WORKS ASSOCIATION—Canadian Section. Annual Convention (Chateau Frontenac). Sec.-Treas., A. E. Berry, Parliament Bldgs., Toronto, Ontario, Canada.

April 25-27—Oklahoma City, Okla.
AMERICAN ASSOCIATION OF AIRPORT EXECUTIVES. Annual Meeting (Hotel Biltmore). Sec.-Treas., Melvin H. Nuss, Box 356, Reading, Pa.

April 28-29—Elmira, N. Y.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Spring Meeting (Hotel Mark Twain). Sec., R. K. Blanchard, Neptune Meter Co., 50 W. 50th St., New York, N. Y.

April 28-29—Hagerstown, Md.
MARYLAND-DELAWARE WATER AND SEWERAGE ASSOCIATION. Annual Meeting (Hotel Alexander). Sec.-Treas., Miss E. Virginia Gipe, 2411 N. Charles St., Baltimore 18, Md.

April 29—Bakersfield, Calif.
AMERICAN WATER WORKS ASSOCIATION—California Section Regional Spring Meeting. Sec., H. C. Medbery, Engr. of Water Purification, San Francisco Water Dept., Millbrae, Calif.

May 2-5—Washington, D. C.
CHAMBER OF COMMERCE OF THE UNITED STATES. Annual Meeting (Chamber Building). Exec. Vice-Pres., Ralph Bradford, 1615 H St. NW., Washington, D. C.

May 9-11—Detroit, Mich.
ASSOCIATION OF STATE PLANNING AND DEVELOPMENT AGENCIES. Annual Meeting (Hotel Book Cadillac). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

May 10-12—Los Angeles, Calif.
AMERICAN PUBLIC POWER ASSOCIATION. Annual Convention (Hotel Ambassador). Gen. Mgr., Carlton L. Nau, 1757 K St., NW., Washington 6, D. C.

May 12-14—Bellingham, Wash.
AMERICAN WATER WORKS ASSOCIATION—Pacific Northwest Section. Annual Meeting (Hotel Bellingham). Exec. Sec., Fred Merryfield, Prof. San. Eng., Oregon State College, Corvallis, Ore.

May 17—Essex Fells, N. J.
AMERICAN PUBLIC WORKS ASSOCIATION—New York-New Jersey Chapter. Annual Meeting (Public Works Bldg.). Sec.-Treas., W. S. Foster, 11th Floor, 470 Fourth Ave., New York 16, N. Y.

***May 25—Bristol, Conn.**
NEW ENGLAND SEWAGE WORKS ASSOCIATION. Spring Meeting. Sec., Walter E. Merrill, State Dept. of Public Health, 511A State House, Boston, Mass.

May 25-27—Chicago, Ill.
NATIONAL INSTITUTE OF CITY AND TOWN CLERKS. Annual Conference (Hotel Sherman). Exec. Dir., Philip P. Costello, City Hall, Perth Amboy, N. J.

***May 27-28—York, Pa.**
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Convention (Hotel Yorktowne). Sec., Charles E. Clark, Box 271, Wayne, Pa.

May 30-June 3—Chicago, Ill.
AMERICAN WATER WORKS ASSOCIATION—National Convention. Annual Convention (Hotel Stevens). Exec. Sec., Harry E. Jordan, 500 Fifth Ave., New York, N. Y.

June 1-3—Washington, D. C.
PRESIDENT'S HIGHWAY SAFETY CONFERENCE (Departmental Auditorium, Federal Works Bldg.). Gen. Chr., Major Gen. Philip B. Fleming, Federal Works Administrator, Washington 25, D. C. Exec. Dir., Rudolph F. King, Federal Works Bldg., Washington 25, D. C.

***June 1-3—Hot Springs, S. Dak.**
SOUTH DAKOTA MUNICIPAL LEAGUE. Annual Meeting. (Hotel Evans). Sec., R. D. Falk, University of South Dakota, Vermillion, S. Dak.

***June 2-3—Hoquiam, Wash.**
ASSOCIATION OF WASHINGTON CITIES. Annual Meeting (Hotel Emerson). Exec. Sec., Chester Biesen, 262 J. Allen Smith Hall, University of Washington, Seattle 5, Wash.

June 6-10—Quebec, Canada
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Meeting (Chateau Frontenac). Exec. Dir., George S. Mooney, Mount Royal Hotel, Montreal, Quebec, Canada.

***June 9-11—Glenwood Springs, Colo.**
COLORADO MUNICIPAL LEAGUE. Annual Convention (Hotel Colorado). Exec. Sec., D. Mack Easton, 327 Norlin Library, Boulder, Colo.

***June 9-11—Hibbing, Minn.**
LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Convention (Hotel Androy). Exec. Sec., C. C. Ludwig, 15 University of Minnesota Library, Minneapolis 14, Minn.

June 10—Paris, France
ASSOCIATION DES CITES JARDINS DE FRANCE and ASSOCIATION INTERNATIONALE DES CITES-LINEAIRES JARDINS. Annual Meeting. Dir., Georges Benoit-Levy, 11 rue Malebranche, Paris 5, France.

***June 12-14—Wilkes Barre, Pa.**
PENNSYLVANIA STATE ASSOCIATION OF TOWNSHIP COMMISSIONERS. Annual Meeting (Hotel Redington). Sec.-Treas. H. A. Fritschman 2325 Darby Road, Havertown, Pa.

June 12-17—Cleveland, Ohio
ANNUAL CONFERENCE OF SOCIAL WORK. Annual Meeting (Cleveland Auditorium). Exec. Sec., Joe R. Hoffer, 82 North High St., Columbus, Ohio.

***June 13-15—Syracuse, N. Y.**
NEW YORK STATE CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Meeting (Hotel Syracuse). Exec. Sec., Morgan Strong, 6 Elk St., Albany, N. Y.

June 13-17—Edinburgh, Scotland
THE INSTITUTE OF PUBLIC CLEANSING. Annual Conference. Sec., K. Wyndham Brown, 8, Orange St., London, W.C. 2, England.

***June 17-18—Chicago, Ill.**
CENTRAL STATES SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Sherman). Sec.-Treas., Paul W. Reed, 1098 W. Michigan St., Indianapolis 7, Ind.

June 22-25—Lake Tahoe, Calif.
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Convention (Tahoe Tavern). Exec. Sec., Charles F. Conlon, 1313 E. 60th St., Chicago 37, Ill.

June 23—Wanaque, N. J.
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Outing and Inspection. Exec. Sec., C. B. Tygert, P. O. Box 178, Newark 1, N. J.

***June 29-July 1—Harbor Springs, Mich.**
MICHIGAN ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (Hotel Ramona Park). Exec. Sec., E. B. Wilson, Detroit Leland Hotel, Detroit 26, Mich.

July 17-20—Oakland, Calif.
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention. Exec. Dir., Keith L. Seegmiller, 1616 I St. NW., Washington 6, D. C.

***July 26-28—Niagara Falls, N. Y.**
NEW YORK STATE ASSOCIATION OF CHIEFS OF POLICE. Annual Meeting (Hotel Niagara). Exec. Sec., R. W. Morris, Room 204 State Tower Bldg., Syracuse, N. Y.

***Aug. 22-26—Baltimore, Md.**
NATIONAL SHADE TREE CONFERENCE. Annual Meeting (Hotel Lord Baltimore). Sec.-Treas., L. C. Chadwick, Department of Horticulture, Ohio State University, Columbus, Ohio.

Sept. 8-9—Minneapolis, Minn.
AMERICAN WATER WORKS ASSOCIATION—Minnesota Section. Annual Conference (Hotel Nicollet). Sec.-Treas., R. M. Finch, 518 Metropolitan Life Bldg., Minneapolis 1, Minn.

Sept. 13-16—Dixville Notch, N. H.
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Hotel Balsams.) Sec., Joseph C. Knox, 204 Tremont Bldg., Boston 8, Mass.

Sept. 19-22—Boston, Mass.
NATIONAL TAX ASSOCIATION. Annual Conference (Hotel Statler). Sec., Ronald B. Welch, P. O. Box 1799, Sacramento 8, Calif.

Sept. 20-22—Des Moines, Iowa
IOWA SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Kirkwood). Sec.-Treas., Leo Holtkamp, P. O. Box 310, Webster City, Iowa.

***Sept. 21-23—Atlanta, Ga.**
GEORGIA WATER AND SEWAGE WORKS ASSOCIATION. Annual Water and Sewage School (Georgia Institute of Technology). Sec.-Treas., Leonard B. Waller, R.F.D. No. 12, Box 246, Atlanta, Ga.

***Sept. 25-28—Washington, D. C.**
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Hotel Wardman Park). Sec.-Treas., Wilbur S. Smith, Strathcona Hall, New Haven 11, Conn.

Sept. 27-30—New Orleans, La.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Meeting (Hotel Roosevelt). Exec. Sec., Daniel B. Tierney, 8 Robbins Road, Arlington, Mass.

Nov. 15—New York, N. Y.
REGIONAL PLAN ASSOCIATION, INC. Fourth Regional Plan Community Conference (Hotel Roosevelt). Exec. Vice-Pres., C. McKim Norton, 205 E. 42nd St., New York, N. Y.

It's EASY to service

CROUSE-HINDS

Type RPS Underwater Floodlight

Just remove four cover screws, pull a plug and withdraw the lamp assembly. It's as simple as that!

It pays to install the modern Crouse-Hinds type RPS easy-to-service underwater floodlights because relamping is so simple and the savings in maintenance time go on and on, year after year for the life of the installation.

Easy servicing is just one of the many advantages you get by installing this up-to-the-minute postwar floodlight. You also save money on installation time as well as construction costs because there is . . . . . .

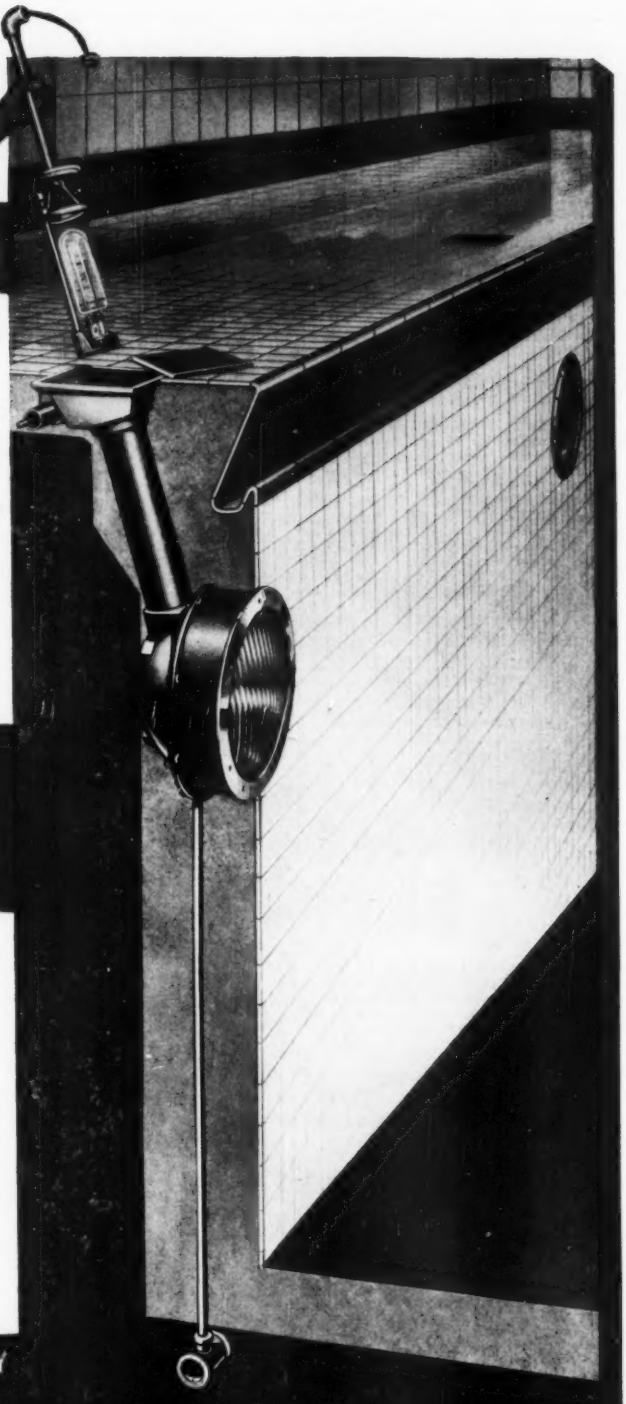
NO Manhole to build
NO Passageway required
NO Wet niche needed

The entire unit can be built right into the pool wall. The flush floor box is connected to the floodlight by a large tube through which the lamp assembly can be withdrawn for easy relamping. The beam of light can be raised or lowered by a control located in the floor box.

If you have a passageway around the pool wall or if manholes are available, Crouse-Hinds also has an underwater floodlight especially designed for such an installation . . . . . Type SPS.

There are three Crouse-Hinds floodlights for the overhead lighting of swimming pools: Type MUA Alumalux provides adequate light at minimum first cost; Type ADE Heavy Duty gives perfect light control with low maintenance cost; Type GCP-14 is an ornamental lantern floodlight for use where appearance is an important factor.

Write for additional information on Crouse-Hinds swimming pool floodlights and their application to your pool.



CROUSE-HINDS COMPANY
Syracuse 1, N. Y.

Offices: Birmingham – Boston – Buffalo – Chicago – Cincinnati – Cleveland – Dallas – Denver – Detroit – Houston – Indianapolis – Kansas City – Los Angeles – Milwaukee – Minneapolis – New York – Philadelphia – Pittsburgh – Portland, Ore. – San Francisco – Seattle – St. Louis – Washington. Resident Representatives: Albany – Atlanta – Charlotte – New Orleans – Richmond, Va. CROUSE-HINDS COMPANY OF CANADA, LTD., Head Office and Plant: TORONTO 2MT.

FLOODLIGHTS AIRPORT LIGHTING TRAFFIC SIGNALS CONDULETS

Swimming-Pool Filtration

(*Continued from page* 103)

There was a time when operators were told to backwash daily or even oftener. But there is a trend among the better operators to wait until the gauges indicate a definite decrease in the quantity of the treated water. Many operators wait until a differential of 10 pounds has developed before backwashing.

New Diatomite-Type Filter

During the past four or five years, the diatomite filter has been used on perhaps two hundred pools. This type of filter, long used in the industrial field, was taken from the "wrong side of the tracks" by the army and navy sanitary experts and given a big boost as an efficient device to produce "polished," bacteria-free, clean water. Progress was made under the pressure of the last war that in ordinary times would have taken 20 to 30 years to duplicate.

In fact many have been so enthusiastic about this "new" filter that they allowed it to be installed at rates far in excess of figures recommended by conservative manufacturers. The result has been a discredit to the filter.

These filters will do a good job even at high rates, but short filter periods, excessive power costs, and other disadvantages are bound to make the operators or owners long for the good old "horse-and-buggy" method.

However, if the filter rates are kept at 2 gallons per square foot or lower, this type will match the economy of the sand filter and do a better job of clarification.

City Tells Its Story

(*Continued from page* 107)

ing. It should receive some kind of national award.

As to recreation, Norfolk recognizes it as a municipal responsibility — so much so that, having found its facilities were quite below the standards of the National Recreation Association, the city began in 1947 an intensive long-range program of recreation expansion. A total capital improvement outlay of $466,000 will be involved in the five-year plan, and by 1952 the city expects to have recreation facilities equal to anything in the South. How this program is proceeding, its background, and the municipality's concept of its responsibility and purpose are a part of The Norfolk Story.

Two publications from Greensboro, N. C., are notable as reports on the specific phase of municipal activity featuring this issue. One is "Recreation in Review," the 1948 annual report of the Park and Recreation Department. The other is "Recreation Space for Greensboro," the Recreation Commission's preliminary plan for developing a well-balanced recreation system for the city. This was prepared by the Department of Planning, F. Stuart Chapin, Jr., Director.

The report is a 41-page mimeographed account of activities. This is an exceptionally good piece of mimeograph reporting because of a profusion of drawings and lettering along with several pages of photographs. The presentation is made extremely lively by the use of short paragraphs and frequent heads.

Greensboro is using radio to promote recreation in a program called "Recreation Round-Up" and the report indicates excellent cooperation from the local press as well. When a polio epidemic closed the playgrounds for a time, the Department took to the newspapers and the air waves with various suggestions for home and backyard activities.

Greensboro's preliminary plan for recreational development is well presented in a 12-page two-color booklet with maps, charts and diagrams to support the text giving the what and why of recreation, where the city stands in recreation and what it should have by national standards. This booklet clearly presents the recreation case to the citizens of Greensboro.

Akron Is Active

Last spring reference was made to a small folder published by the Recreation Department of Akron, Ohio. Recently the latest edition of the folder arrived. "Fun for the Family in Akron" is an example of combining promotion of financial support for recreation with promotion of activities support . . . told on two sides of a single sheet of paper.

In word and picture, the activities of a typical family are recounted on one side while the recreational areas and facilities are listed on the reverse side. This makes a good mailing piece and takes up slight pocket room if one wants to carry it around for reference.

These are but a few examples of how municipal recreation is telling its story to the public. And the more effective MPR for recreation becomes, the clearer will become the whole city story in the public mind.

Business District Gets New Refuse Collection Rates

(*Continued from page* 125)

5. Cooperation of Merchant
   a. Provide a separate container (metal, if possible) with lid for the trash.
   b. Provide a separate metal container with lid for garbage.
   c. All containers to be located outside the store at the rear unless special arrangements are made with the city.
   d. All trash and garbage to be placed in proper containers. Excess trash that cannot possibly be placed in trash containers should be placed carefully immediately adjacent to the trash containers. Trash and garbage which can be quickly and easily handled will mean that the city can collect the refuse without delay and thus keep the service charge at a minimum.
6. City's Responsibility
   a. Collect all trash and garbage from your place of business.
   b. After emptying containers to place them in their proper location and replace the lids.
   c. Clean up all refuse scattered on the ground while loading.
   d. Courteous and efficient service.

   (If the service is unsatisfactory at any time, please call the City Hall at Phone 33.)
7. Charge for Your Refuse Service

   It is our understanding you wish ... pick-ups per week. Therefore, after carefully considering all factors involved in collecting your refuse, it has been determined that your monthly charge is $..... This charge is based on the actual time it takes to make your collection (please note schedule of times and rates), and it is figured on the basis of $3.85 per hour or 6.4 cents per minute operating costs to the city.

   FOR EXAMPLE:

   A monthly charge for 26 pick-ups (6 pick-ups per week) would be 26 × 6.4c. or $1.66.

In order to save you and the city additional mailing and bookkeeping expense you will be billed quarterly as in the past. This new rate will become effective on January 1, 1949. It includes service to .....

If you wish to discuss this matter with us, please see Frank Lawler at the City Hall by Dec. 1, 1948. Your cooperation in this important matter is earnestly solicited.

Very truly yours,

Gerald D. Wilkins

Gerald D. Wilkins
City Manager

GDW/FL

If your city is not metered...

or if your present meters are obsolete...

or if your traffic flow needs greater guidance...

Ask to see these valuable

CONTROL DEVICES

MILLER
The parking meter that is first choice all over America.
AUTOMATON
The amazing new parking meter that actually winds itself.
SCHOOL
ZONE
Duncan Safety FLASHERS
The all-electric traffic sign that commands greater attention and obedience.

Here are traffic control devices that set the pace others follow. Write today for illustrated catalog and details on how easily they can be purchased.

DUNCAN METER CORPORATION

835 No. Wood Street, Chicago 22, Illinois

When writing Duncan Meter Corp., please mention THE AMERICAN CITY

Municipal and Civic Publications

City Income Sources, 1947-48

1949 SUPPLEMENT TO WHERE CITIES GET THEIR MONEY—*By Miner B. Phillips. Municipal Finance Officers Association, 1313 E. 60th St., Chicago 37, Ill. 30 pp. $1.*

A clear and concise summary report of municipal tax developments in 1947 and 1948. The report terms the year 1947 a turning point in municipal finance, particularly from the standpoint of state legislation, which opened heretofore untapped sources of revenue for municipal use. It refers especially to the Pennsylvania legislation giving local governments almost a free hand in taxation.

Sewage Works Financing

NOTES ON SEWER SERVICE CHARGES—*By Henry W. Taylor, distributed by the American Public Works Association, New York—New Jersey Chapter, I. J. Casey, Jr., Town Engineer, Irvington, N. J., president. 27 pp. 50 cents.*

A mimeographed copy of a paper delivered by Henry W. Taylor, New York City consulting engineer, on the subject of sewer service charges in the New York metropolitan area. Mr. Taylor's chief point is that service charges must be based not only on use of the sewers but also on "readiness to use," and compares this latter factor with the fire protection charge used in water rates.

In addition, Mr. Taylor's discussion lists certain formulas used to determine an equitable charge for industrial wastes, and tabulates the sewer service charges in use throughout the New York area.

Recreation Congress Proceedings

PROCEEDINGS OF THE 30TH NATIONAL RECREATION CONGRESS—*Published by the National Recreation Assn., 315 Fourth Ave., New York 10, N. Y. 1948. 208 pp. $2.25.*

This booklet gives the prepared addresses and summaries of discussion groups of the various sessions of the Congress held in Omaha, Nebr., September 26-30, 1948. It should be a helpful reminder to those who were present and a source of interesting ideas and suggestions to those not able to attend. Recreation programs for different age groups, vacation and tourist recreation; family, church, college, and community recreation; drama, rural, and urban recreation—are a few of the many phases of this large subject which were discussed at these meetings.

Specification Work Sheets

SPECIFICATION WORK SHEETS—*By Ben H. Dyer, A.I.A. The American Institute of Architects, 1741 New York Ave., Washington 6, D. C. 1949 198 pp. $5.*

These time-saving work sheets are prepared on the assumption that many specifications vary only slightly from job to job. They therefore include many items which would not be needed for any one job and should be freely marked up, crossed out, or changed by the architect. They are intended especially for large fireproof and semi-fire-resistant structures, although some sections may also be used for small non-fire-resistant residential work.

Organizing a Community Film Center

HOW TO ORGANIZE A COMMUNITY FILM INFORMATION CENTER—*By Charlesanna Fox. Film Council of America, 6 West Ontario St., Chicago 10, Ill. 16 pp. 15 cents.*

A center for indexing available films and giving advice on where and how to show them should be of use to any community agency or organization interested in visual education. This pamphlet tells how to establish such information centers and outlines their functions. Also lists selected catalogs, bibliographies, books, pamphlets, and periodicals containing audio-visual material.

Rainfall and Runoff

RAINFALL AND RUNOFF—*By E. E. Foster, Macmillan Co., 60 Fifth Ave., New York. 487 pp. $9.*

A strictly scientific text aimed at a specialized field. Wherever rainfall and its run-off characteristics are an important factor in water supply, hydro-electric operations, or other forms of water and power production, this book will guide the engineer in making the right decision. It has 12 chapters, some dealing with atmospheric moisture and its precipitation; air masses; storms which produce precipitation, and frequency of precipitation. The book dwells only briefly on groundwater supplies and its relation to rainfall and runoff.

Swimming-Pool Reference

SWIMMING-POOL DATA AND REFERENCE ANNUAL, 1948—*Published by Hoffman-Harris, Inc., 425 Fourth Ave., New York 16, N. Y. 122 pp. Subscription, $3.*

Excellent articles on swimming-pool planning, design, construction, and operation are included in Volume 16 of this useful annual. The articles include "Pool Planning, Construction and Operation: A Symposium," "The Municipal Swimming Pool—Factors Affecting Its Size and Shape," and "Standards for Design, Construction, Equipment and Operation of Swimming Pools." There are discussions of break-point chlorination, and the advantages and disadvantages of bromination, as well as other articles on eight modern pool projects, fountains in pools, and swimming-pool regulations. The volume also contains a useful guide and directory to equipment and supplies.

City Government Text

GOVERNMENT OF CITIES IN THE UNITED STATES—*By Harold Zink. The Macmillan Co., 60 Fifth Ave., New York, N. Y. Revised edition. 1948. 637 pp. $5.*

The revised edition of this valuable college text stresses the growth of municipal welfare and service functions. Municipal activities in the public-works field, local administration and finance are also highlighted. The expanding area of federal-municipal relations is expertly handled. The author concentrates on presenting basic issues and skilfully weaves in details and statistics.

Of special interest is the appended plan for the study of a single city. Fifty suggested items, enhanced by leading questions, are included as a rating system for measuring the achievements of a city. Diverse matters, such as the caliber of precinct leaders, zoning provisions, and insect control are covered. College instructors will be tempted to assign this study for a term project, and municipal officials might be tempted to find out how their city stacks up.

Recreation Buildings

RECREATION BUILDINGS—*Reprint from the December 1948 issue of Architectural Record, 119 W. 40th St., New York 18, N. Y. Building Types Study No. 144. 24 pp.*

An excellent discussion of community recreation building requirements, together with sketches and drawings for a number of projected community centers for both small and medium-size municipalities are included in this reprint.

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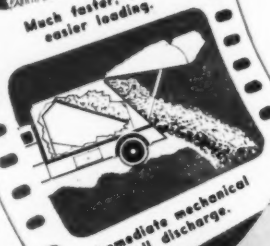

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Two Metropolitan Housing Surveys

GREATER SEATTLE HOUSING MARKET SURVEY—*Bureau of Business Research, College of Business Administration, University of Washington, Seattle, Wash.* 1948. 188 *pp. Tables.* $3.50.

—METROPOLITAN SAN DIEGO HOUSING SURVEY, 1948—*Institute of Public Opinion, San Diego State College Foundation, San Diego. Calif. Tables.* 200 *pp.*

These two excellent West Coast city documents establish a high bench mark for the skillful use of methodology, analysis, and cooperation of community groups in the preparation, execution, and publication of comprehensive metropolitan housing surveys.

The Seattle survey was sponsored by the Mayor's Emergency Housing Committee, although business and civic organizations contributed funds for the project. The San Diego survey was financed and sponsored by the cities of San Diego, Chula Vista and National City, together with the U. S. Public Housing Administration. In both cases, the actual research work was carried out by independent institution staffs. The surveys should prove of great value to builders, lending institutions, and municipal authorities as they define clearly existing housing market needs and location preferences.

Canadian Housing

HOUSES FOR CANADIANS—*By Humphrey Carver. University of Toronto Press, Toronto, Canada.* 1948. 156 *pp.* $2.50.

This is an analytical study of housing based on a three-year study centered on Greater Toronto. The author has recently been appointed Supervisor of Research for the Canadian government Central Mortgage and Housing Corporation.

The book points out that, although there has been a great deal of housing production in Canada since the war's end, there is little public understanding of the task which still remains. The author suggests that Canada should formulate its own solutions to the problem rather than borrowing the methods of other countries. The general conclusions drawn from the statistics on the Toronto metropolitan area are said to apply widely throughout Canada.

Planning for Pedestrians

THE BATTLE OF LEGS AND WHEELS—*December* 1948 *issue of* Layout for Living, *published by Community Planning Association of Canada, 56 Lyon St., Ottawa, Canada.* 8 *pp.* 25 *cents.*

An engaging plea, illustrated with photos and cartoons, of the need for further attention to pedestrians in traffic proposals and planning schemes. The two articles in the issue point out that although pedestrians are in the vast majority in the central business districts of most cities, little has been done to make walking in cities or out of cities pleasant and safe. The issue argues for separation of footways from roadways, the blocking off of certain downtown streets from vehicular traffic, and the creation of pedestrian islands within which pedestrians can move freely.

Bettering Labor Relations

PARTNERS IN PRODUCTION—*By the Labor Committee of the Twentieth Century Fund.* 330 *West* 42 *St, New York* 18, *N. Y.* 1949. 149*pp.* $1.50.

In the midst of the controversy surrounding revision of national labor legislation, the Twentieth Century Fund's Committee on Labor has produced a landmark report on labor-management relations.

The report examines the goals of unions, of management, and of the individual worker, urges cooperation within areas of agreement, and probes seemingly conflicting interests until they yield mutual labor-employer concerns. Recognizing that "organized labor is here to stay" the authors recommend the integration of the union into plant organization to provide effective two way communication, and studies to formulate basic wage policy standards.

The analysis of goals and attitudes of unions and management is especially valuable, including the conclusions of the now famous Hawthorne studies, as well as such aims as higher wages and job security. The Committee focuses attention on human relations in the plant, and optimistically views industrial relations as a partnership.

Passaic County Planning Report

LIVING SPACE FOR A MILLION PEOPLE—*Passaic County Planning Board, County Administration Bldg., Paterson, N. J.* 1948. *Mimeo.* 27 *pp.*

This report surveys existing land uses in Passaic County, population trends, and estimated future dwelling space requirements. It urges the mapping out of a logical program for development for the open land of the county, indicating the best use which can be made of the land, in order to prevent the growth of new blight.

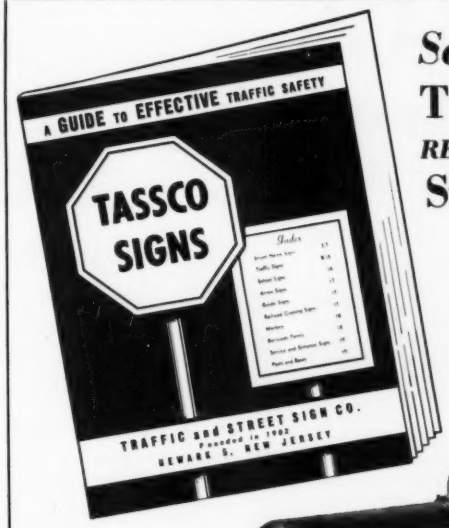
The report is designed as a guide, and not a substitute, for more detailed municipal plans. However, it recommends a more active program of county aid for local planning programs in the formation and administration of comprehensive municipal master plans which would encourage desirable future development.

Community Belief Systems

THE POLITICAL COMMUNITY—*By Sebastian De Grazia. The University of Chicago Press, Chicago* 37, *Ill.* 1949. 258 *pp.* $4.

For an absorbing excursion in socio-political theory, try "The Political Community." It is a penetrating discussion of belief systems—political, religious, economic—, the need for them, conflicts among them, and consequences of the degradation of political belief systems.

The universality of belief systems is traced to common childhood experience and is explored in psychological terms of separation—anxiety. Contradictions between or divergences within belief systems prompt two types of anomie, simple and acute. This erudite volume analyzes anomie, the anatomy of the disintegration of a belief system, and subsequent attempts to substitute a new belief system, or to adapt to anomie. The analyses are illumined by a wealth of illustrations drawn from a variety of sources.



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Local Community Development

LOCAL ACTION FOR COMMUNITY DEVELOPMENT—*Published by the Pennsylvania State Chamber of Commerce and the Pennsylvania Department of Commerce, Harrisburg, Pa.* 1948. 48 *pp.*

What things does your community most need? How can you, as a citizen, go about securing these needs? This amusingly illustrated booklet answers these questions for the layman and tells him how to start the ball rolling, how to have necessary facts collected, and how to divide the work by organization and subcommittee methods.

Mississippi Local Units

THE UNITS OF GOVERNMENT IN MISSISSIPPI—By *Robert Baker Highsaw and Carl Denver Mullican, Jr. Bureau of Public Administration, University of Mississippi, University, Miss.* 1949. 19 *pp.*

Defines the various units of government under which a Mississippi citizen lives, interspersing various population and area charts, and housing and school tables.

Taxicab Regulaton

MUNICIPAL REGULATION OF TAXICABS—*By Ernest Howard Campbell and Joshua H. Vogel, Bureau of Governmental Research and Services, University of Washington, Seattle, Wash. Report No. 95. August* 1948. 74 *pp.*

Prepared at the request of the Association of Washington Cities, this report sets forth the legal powers of cities to regulate taxicabs, the methods of regulation, and the advantages derived. It also quotes and analyzes 18 representative ordinances of Washington cities.

Hoboken's Government

THE GOVERNMENT OF HOBOKEN, A REPORT OF AN ADMINISTRATIVE AND FINANCIAL SURVEY OF THE CITY OF HOBOKEN, N. J.—*By Thomas H. Reed and Doris D. Reed. National Municipal League, 299 Broadway, New York, N. Y.* 1948. *Mimeo.* 156 *pp.* $2.

A hard-hitting report, originally issued in January 1918, which illustrates the depths to which American municipal government can fall if boss rule and civic inertia continue over a period of time.

As a well-documented record of civic corruption, the report should be of considerable historical value.

Films on Health

A HEALTH FILM PROGRAM FOR AMERICA—*Published by The World Today, Inc., 460 West 58th St., New York* 19, *N. Y.* 1949. 28 *pp.* $1.

Since problems of health lend themselves particularly well to visual presentation, health, civic, and service organizations might plan both interesting and instructive meetings by showing some of the already available films—which may be obtained from sources given in this pamphlet.

Trends in Local Taxes

THE NEW LOOK IN CITY TAXES—*Tax Institute, Inc., 150 Nassau St., New York 7, N. Y. December* 1948 *issue of "Tax Policy."* 12 *pp.* 25 *cents.*

A synthesis of recent addresses by Dr. Mabel L. Walker, tracing the ever-increasing powers of local taxing bodies and the types of levies being imposed, with emphasis on the effect of urban decentralization upon taxes.

Social Work Yearbook

SOCIAL WORK YEARBOOK, 1949—*Margaret B. Hodges, Editor. Russell Sage Foundation, 130 E. 22nd St., New York* 10, *N. Y.* 1949 714 *pp.* $4.50.

This is the tenth edition of the *Social Work Yearbook*, which is published biennially as a concise encyclopedia descriptive of organized activities in social work and related fields. Part One consists of 79 signed articles written by authorities on the topics discussed. These cover a wide range, including such headings as "Administration of Social Agencies," "Child Welfare," "Civil Rights," "Community Chests," "Housing and City Planning," "Medical Care," "Public Health," "Recreation," and "Youth Services." Part Two consists of four directories of agencies whose programs are integral with or related to the subject matter of Part One.

Report on a Community's Economic Base

A REPORT ON THE ECONOMIC BASE OF THE BROCKTON, MASS., AREA—*By Homer Hoyt Associates, 12 West Drive, Larchmont, N. Y.* 1949. 80 *pp.* $1.

Implementing the concept of "basic and service employment," which he has used in studies of New York, Chicago, and other American cities, Dr. Hoyt points the way for Brockton to obtain its goal of full employment by 1951—this despite a long, unhealthy downward trend in that city's economic condition. His findings are supported by numerous tables giving data on such factors as employment, housing, population and age groups, as well as on the shoe industry and other manufactures. An especially interesting chart shows the general money flow in the Brockton community study area for the year 1947.

College Recreation Facilities

COLLEGE FACILITIES FOR PHYSICAL EDUCATION, HEALTH EDUCATION, AND RECREATION—*Published by The College Physical Education Assn., Queens College, Flushing, N. Y. Glenn W. Howard, Secretary-Treasurer.* 133 *pp.* $1.50.

Starting with a hypothetical student group of 500 men and 500 women who are to attend physical education classes at least three times a week for four years, the Association describes and illustrates adequate indoor and outdoor facilities for all athletic activities. Standards are set and dimensions given for swimming pools, stadiums, various courts and fields.

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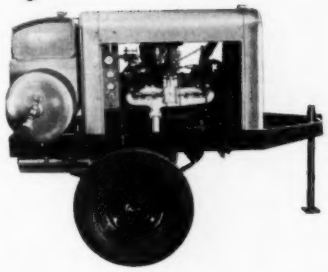

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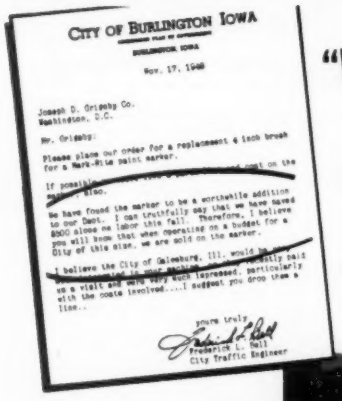

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Optional Charter Plan for New Jersey Municipalities

LOCAL SELF-GOVERNMENT IN NEW JERSEY: A PROPOSED OPTIONAL CHARTER PLAN, FINAL REPORT OF THE COMMISSION ON MUNICIPAL GOVERNMENT—*20 Nassau St., Princeton, N. J.* 1949. 120 *pp.*

This is the final report of the Commission on Municipal Government which was charged by the State Legislature with the duty of inquiring into the form and structure of municipal government in New Jersey, with the purpose of "suggesting in what respects the laws of New Jersey might be changed to provide the fullest opportunity for local self-government, consistent with the interests of the State as a whole."

The report sets forth a proposed new system of optional charter plans, which establishes practical inducements to charter improvement by offering municipalities extensive powers of local self-government, freedom from many mandatory laws, and relief from the need for specific legislative approval to undertake new or different municipal services. The only positive requirement in the entire report is that at the end of a reasonable time, stated as six years, the voters in each municipality should consider whether or not they wish to elect a charter commission.

The Hospital and the Community

THE HOSPITAL IN CONTEMPORARY LIFE—*Edited by N. W. Faxon, M.D. Harvard University Press, Cambridge, Mass.* 1949. 288 *pp.* $5.

With the mushrooming growth of Blue Cross plans and increased pressure for public health legislation, this timely volume on the role of the hospital in society should attract a large amount of attention.

Written by staff members of the Massachusetts General Hospital and Harvard Medical School Faculty, this series of essays traces the history of the modern concept of hospital, considers the role and education of the physician, and the social implications of medicine and science.

Hospitals are the fifth largest business in the United States, and yet per capita expenditures for hospitals are less than the amount spent for cosmetics, night clubbing or sports. The problem of sources of hospital support, the extent and methods of government or local community assistance are evaluated. The authors favor voluntary hospitals supplemented by local community support. This volume is intended for the layman, and is concerned with the societal as distinct from the scientific aspect of hospitals. It is provocative enough to stimulate further reading in the suggested references.

Area and Administration

AREA AND ADMINISTRATION—*By James W. Fesler. University of Alabama Press, University, Ala.* 1949. 158 *pp.* $2.50.

Consisting of a series of lectures delivered as part of the Southern Regional Training Program in Public Administration, this volume explores the concepts and conflicts of area and function.

Viewing government from the "worm's eye" or individual citizen's view, Professor Fesler examines area and function in light of such factors as distribution of phenomena, efficiency, fiscal adequacy, and popular control.

The presentation combines the theoretical view of area and its practical consequences, illustrated by the practical experience of OPA, WPB, and other government agencies.

Two broad processes of adjustment of area and function are formulated—structural reform and cooperative techniques. Suggestions for the reconciliation of area and function are tempered by a realization of the need to preserve democratic values and to fit into local patterns. Among the suggestions offered is a particularly interesting one for the establishment of intergovernmental units to institutionalize recognition of the problems of government on lower levels, and to appraise governmental activities in terms of their impingement on lower levels of government.

The text is a must for students of administration and is rich in suggestions for research in case studies and administrative theory.

Public Administration Library Manual

PUBLIC ADMINISTRATION LIBRARIES: A MANUAL OF PRACTICE—*Public Administration Service, 1313 E. 60th St., Chicago 37, Ill. Publication No. 102.* 1948. 91 *pp.* $2.50.

This is a reprint of the 1941 version of the manual; all lists of materials in Chapter II and publishers' addresses having been brought up to date. It covers such practical library problems as acquisition of material, cataloging, physical care of publication, and library administration and finance. The suggested lists of reference and source books, the list of firms making library equipment, and the addresses of publishers should be of great help to any public administration librarian.

York Planning Report

THE YORK CITY-COUNTY COMPREHENSIVE PLANNING SURVEY—*Published by York Chamber of Commerce, York, Pa.* 1948. 370 *pp.* $18.50.

An extensive and ambitious planning survey, this elaborately published report was originally prepared by the planning staff of Michael Baker, Jr., Engineers, of Rochester, Pa., under a joint contract with the City and County of York. The Chamber of Commerce assumed the responsibility for printing and distributing the report because of its connection with the planning program from its beginning.

A very limited number of copies of the report are available for outside distribution at the price indicated. If this cost can be met, the report may be of value as a reference to other communities and to colleges and universities giving planning courses.

Billboard Control

THE MUNICIPAL REGULATION OF BILLBOARDS—*From the Nov. 1948 issue of "The Municipality." League of Wisconsin Municipalities, 30 E. Johnson St., Madison 3, Wis.* 25c.

A model ordinance for control of billboards, prefaced by an introduction giving court precedent.

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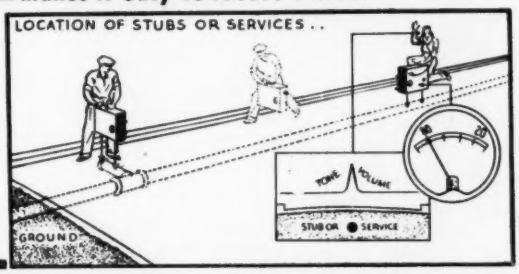
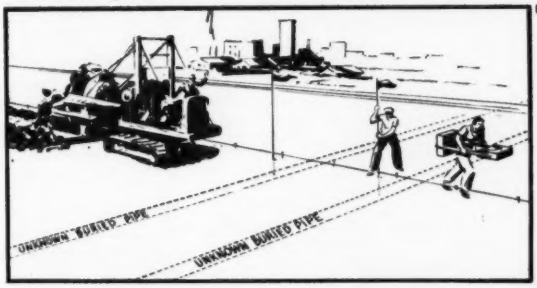


—and easy to locate a hidden pipe and to trace its course:



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MI-CO METERS, 231 Court St., Covington, Ky.

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Representatives Wanted

Planning and Housing Reports (March 1949)

CHICAGO, ILL.—The Chicago Housing Authority Reports for 1948. Chicago Housing Authority, 343 S. Dearborn St., Chicago 4. Illus. Tables. Charts. 25 pp.

NETHERLANDS—Three Years of Reconstruction in the Netherlands. Compiled by the Information Service of the Ministry of Reconstruction and Housing, The Hague. Illus. Maps. Charts. 35 pp.

NEW YORK, N. Y.—Report on the Metropolitan Park Needs. The New York State Council of Parks, 270 Broadway, New York 7. Illus. Maps. 20 pp.

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LOS ANGELES, CALIF.—Los Angeles County Chief Administrative Officer: Ten Years' Experience. Bureau of Governmental Research, University of California, Los Angeles. Nov. 1948. Mimeo. Charts. 77 pp. 50 cents.

MICHIGAN—Snow and Ice Removal Practices in Michigan Municipalities. Michigan Municipal League, 205 S. State St., Ann Arbor. Nov. 1948. Bulletin No. 58. Mimeo. Tables. 19 pp. $1.50.

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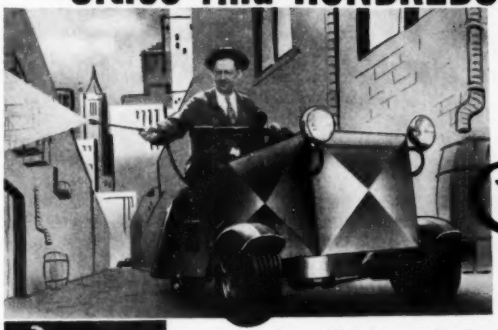
Cities find HUNDREDS of uses for handy Cushman MOTOR SCOOTER



EVERY day progressive officials are finding new, practical uses for the handy CUSHMAN Motor Scooter, America's BEST BUY in low cost transportation. Parks, streets, police, traffic, health . . . every department in the city has valuable uses for CUSHMAN. SAVES tax dollars three important ways: low initial investment, low maintenance and repair, and unbelievably LOW OPERATING cost. Actually CUSHMAN operates for LESS than 1/3c per mile. Ask your dealer to demonstrate these amazing facts, or WRITE DEPT. AC-39

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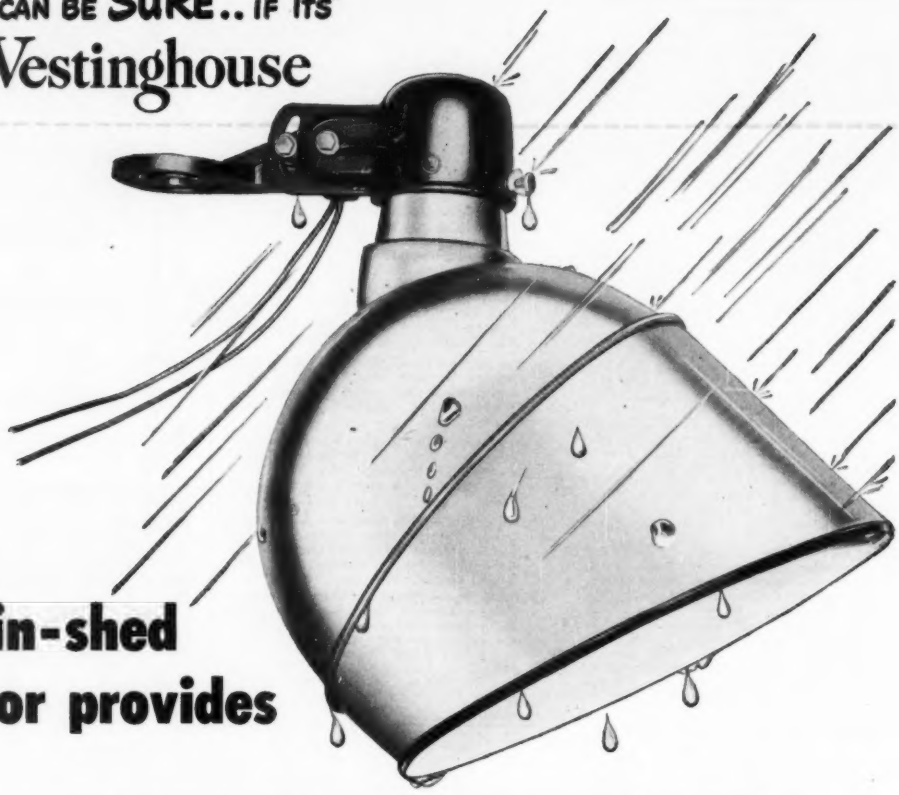

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ALL WEATHER PROTECTION

Let it rain, let it snow . . . the Westinghouse AFA-16 open-type sports floodlight is weather-protected. Welded to the reflector, a rain-shed visor efficiently sheds rain and snow without impairing efficiency of the lamp which is snugly recessed deep inside, safe from foul weather—or foul balls. Circular visor provides proper cutoff to eliminate blinding glare and produces a medium or wide beam of high efficiency.

Easy to maintain, the reflector can be detached for routine cleaning without disturbing wiring or spotting adjustment.

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WASHINGTON — Washington Voters' Handbook. Bureau of Governmental Research and Services, University of Washington, Seattle. Oct. 1948. Mimeo. Tables. $1.

WILMINGTON, DEL.—Report of Mayor's Auditorium Study Committee, March 20, 1947-Dec. 30, 1948. Mimeo. Tables. 19 pp.

WISCONSIN—The Municipal Regulation of Billboards. Issued by the League of Wisconsin Municipalities, 30 East Johnson St., Madison 3. Mimeo. 6 pp. 25 cents.

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——Domestic Air Cargo. U. S. Department of Commerce, Civil Aeronautic Administration, Washington, D. C. Dec. 1948. Mimeo. Tables. 54 pp.

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Fight Fires Quickly, Safely -at the source!

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Scott Air-Paks are reducing fire losses by permitting action at the fire's source — quickly, and without fear of unknown smoke or fume hazards. In less than a minute an Air-Pak is on the wearer "ready to go", with a supply of cool, confidence-inspiring *air* (not oxygen) instantly available.

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Many in use by cities and towns with a number of "cellar-less" single story buildings; also used to supplement Scott Back-Paks (above) for short-duration periods, and for chiefs to make short inspection trips into smoke or fume-laden buildings.

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PROUD OF YOUR SAFETY RECORD?

5904-A-50CN
Neon signal light unit with bell.

Fig. 3—Spring mounted vertical lift or bascule bridge lamp.

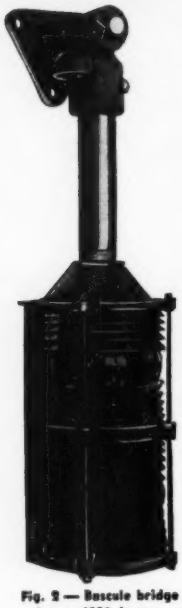

Fig. 2 — Bascule bridge lamp. 180° lenses.

You can be . . .

with WRRS NAVIGATION LIGHTS
and TRAFFIC WARNING SIGNALS

Performance you can count on — the utmost in safety — that's what you get when you install WRRS-built safety accessories for movable bridges. More than 30 years of experience in this highly specialized field enables us to offer you the most modern and thoroughly proved equipment.

WRRS warning and navigation lights are quality-built for long, dependable service. In every respect, they meet Coast Guard specifications for navigation signal lights.

Our engineering department is ready to help you with your particular bridge control and lighting problems. This department is also prepared to handle application of power (gasoline or electric) to existing hand operated bridges.

Fig. 6—Fender or channel marker. 360° lens — any color.

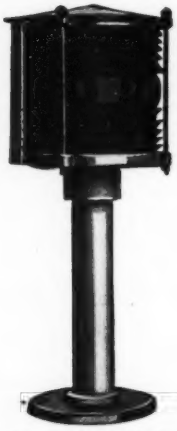

Fig. 1 — Standard pier lamps. 180° lens — any color.

Fig. 5—Drawbridge lamp. Four 90° lenses with visors.

We shall be glad to send you the names of many communities that have installed WRRS safety lights and signals.

Write today for Bulletin No. 144 NN-1-AC-5 which gives a full description of WRRS Traffic Warning Signals, Navigation Lights, and Model N-N Gates for bridge approaches.

WESTERN RAILROAD SUPPLY CO.

Designer and Manufacturer of Model 10 Highway Crossing Signals and Safety Devices for Railroads

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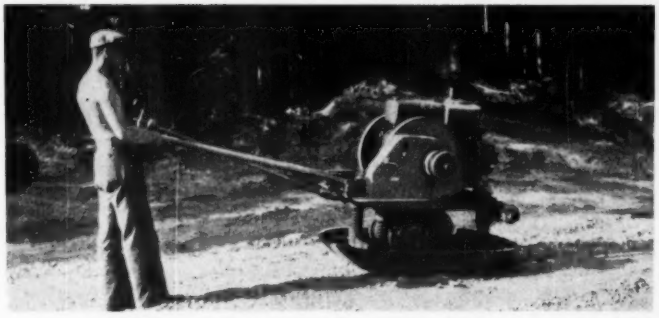
CERTIFICATE OF MERIT for Safety — Awarded to WESTERN RAILROAD SUPPLY CO. by the New York Museum of Science and Industry

News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

High-Frequency Compacting Of Concrete And Soil

Vibro-Plus compaction of the sled type obtains 95% compaction to a depth of 4 feet in two passes.



To obtain the full structural use of concrete or soils, one should make them as dense and free of weakening voids as possible. In soils, this compaction can be accomplished by rolling, tamping or vibration. In concrete, rapid vibration breaks down the static friction between particles, causing the concrete to spread out by gravity. The mix subsides by 10 to 15% of its volume and its density increases by about that amount and excess air is removed.

An interesting practical application of this in concrete work occurred in the manufacture of 1,400 reinforced-concrete gratings for covering a surface drain on a large airport. The gratings were 6 feet long, 22 inches wide, and 7½ inches thick, with 15 openings. After placing the steel reinforcement in the mould there wasn't much room for the concrete, which was required to develop a compound strength of 4,000 psi at 28 days. To deliver the required 15 units per day the contractor expected to have to make 15 expensive moulds. He met the production schedule with two moulds and finished 30 gratings per 8-hour day. These gratings averaged 3,000 psi in three days and 6,000 psi in seven days.

Each of the two moulds was fitted with two Topdog Form vibrators made by Vibro-Plus Corp., 243 West 55th St., New York 19, N. Y. The concrete mixture had a water-cement ratio of only 0.4. Only 2.2 gallons of water was added per bag of cement. The vibrators made this dry, harsh mixture semi-fluid and it consolidated within 60 seconds. After 5 to 7 minutes of vibration the forms could be removed immediately. The gratings were covered with wet burlap for preliminary curing and at the close of the day were covered with fresh burlap and steam-cured for 12 hours, when they were placed on a sand bed for 48 hours with burlap covers kept wet by water spray. The result was a tremendous bond-strength between the steel and the concrete because, with precision vibration, there is no entrained air or free water under the steel. The cost was a third that of cast iron gratings.

Soil Compaction

Soil can be similarly compacted, but with a different type of a machine. The job can be performed with a roller, which is common practice, or with a vibratory soil compactor also made by the Vibro-Plus Corp. This machine packs road banks, backfills, earth dams, base courses for airfields, and soil under floors and on grounds. It does it with a solid vibrating base plate in direct contact with the soil. The vibrator element which is hinged to the base plate contains two excenters which operate synchronously in opposite directions with a combined centrifugal force of 9,000 pounds. A wheel at the steering handles permits the vibrator to be turned so that the force from the excenters can be tilted in relation to the vertical plane or slope of the ground. The machine is driven by a 10-hp diesel engine and weighs 3,300 pounds. In packing large open areas, as an airfield, the machine can accomplish about four times more work by being towed by a tractor. Under its own power, with two passings, the capacity is 1,000-2,000 square feet per hour, which for a compacted layer of 1.6 feet means 1,700 to 3,500 cubic feet of packed material.

To attain as high a degree of compaction as possible with a given machine requires that, with a roller, at least five "passes" must be made over the material. With a rubber-tired roller, weighing 25 tons with 5 tons on each of the five wheels, compaction proceeds even after the machine has passed eight times over the soil, when 94.2% of absolute compaction has been attained. With an ordinary roller, weighing 12 tons with 615 psi on the front end and 1,135 psi on the rear end, its maximum of 95.6% is reached after five or six passes. After the same number of passes a vibrating roller, weighing 7 tons with 328 psi on the vibratory roller, achieves 96.2% of the absolute. With the MRJ-6 vibratory compactor, weighing 1.6 tons with a frequency of 1,500-2,000 vibrations per minute and a centrifugal force of 4 tons, its top result of 97.2% is achieved after going over the soil twice. These results were actually obtained in competitive tests utilizing the aforementioned equipment. A different kind of soil might have given varied results as to compaction degree and depth.

Other Vibrating Compactors

While on the subject of compaction of materials for different purposes, it might be helpful here to mention that Vibro-Plus Corporation specializes in machines for compacting. There are vibrating screens for sifting, vibrating troughs for placing sheetfilling, surface vibrators for small-sized backfill, vibrating spades for internal vibrations, and a vibrating tamper for concreting floors or compacting soil.

Schroeder New Ad Promotion Man for Reeves Brothers

John M. Reeves, president of Reeves Brothers, Inc., 54 Worth St., New York 15, N. Y., cotton textile manufacturer, has announced the appointment of Charles F. Schroeder to the newly created office of advertising promotion manager.

Chas. F. Schroeder

Mr. Schroeder, who comes to Reeves from the company's advertising agency, will contact consumer and trade publications and do liason publicity and advertising promotion work.

Mr. Schroeder's appointment is keyed to Reeves' expanding advertising plans to include promotion of the company's fabrics for uniforms and utility and work clothes, with special emphasis on Reeves Army Twill, Byrd Cloth, and Reevecord.

Two Fair Questions

THE 1ST — TO THE OFFICIALS OF THE 4,500 CITIES AND TOWNS THAT HAVE GIVEN UP THE PAPER BALLOT SYSTEM OF CONDUCTING ELECTIONS AND HAVE INSTALLED AUTOMATIC VOTING MACHINES:

"Would you willingly abandon your machines and return to the paper ballot with its slow and laborious voting, its spoiled and mismarked ballots, its many arguments over the count, its delays in computing the returns and its costly recounts?"

WE BELIEVE THE ANSWER WOULD BE A RESOUNDING "NO" BECAUSE VOTING MACHINES ASSURE:

ABSOLUTE SECRECY
NO SPOILED BALLOTS
REDUCED ELECTION COSTS
EASY AND SPEEDY VOTING
IMMEDIATE RETURNS
AN ACCURATE COUNT
NO EXPENSIVE RECOUNTS

THE 2ND — TO THE OFFICIALS OF THE CITIES AND TOWNS STILL USING THE PAPER BALLOT SYSTEM:

"Are you interested in learning how your community can have a better and a less expensive voting system?"

IF YOU ARE INTERESTED, WE WILL SEND YOU WITHOUT OBLIGATION, INFORMATION ON HOW THE AUTOMATIC VOTING MACHINE CAN PRODUCE THESE IMPROVEMENTS.

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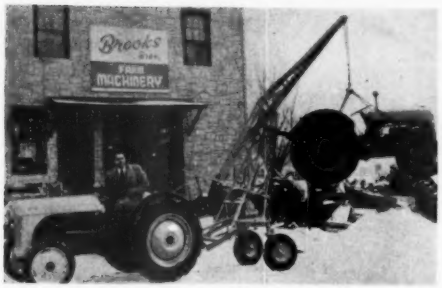


A cradle-boom yard crane that lifts up to 3 tons is finding increasing favor from park and playground superintendents. Used with jeep or light tractor with power takeoff, the Handi-Hoist has a 9-foot clearance and can be lifted to 15 feet. Literature may be obtained from the Construction Machinery Co., Waterloo, Iowa.

New A.G.C. Chapters In Louisiana, Michigan

A new highway and heavy industry chapter of the Associated General Contractors of America, Inc., Munsey Bldg., Washington 4, D. C., has been created in Louisiana with headquarters in Baton Rouge; A. N. Goldberg is president, Arthur C. Watson vice-president, and Roy M. Lilly secretary-treasurer.

The board of directors of the Michigan Road Builders' Association recently voted to affliate with the A.G.C. This group's officers are Paul C. Miller, president; C. E. Cooke, vice-president; P. M. Thornton, Upper Peninsula vice-president.

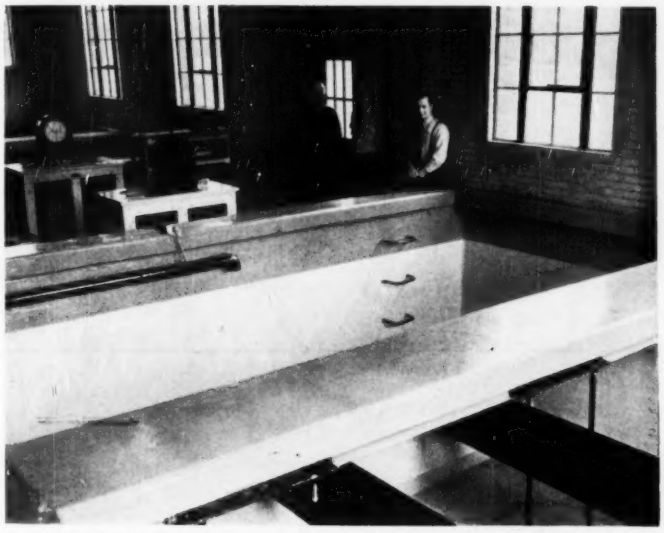
New Chair for Draftsmen

The draftsman chair shown here is the latest Cramer posture model. The full line includes both steel and aluminum chairs for stenographers, switchboard operators, cashiers, executives —in fact chairs for every seated worker.

This is the first chair designed particularly to fit the needs of workers who are in motion or partially standing. The seat has a forward tilt which gives the draftsman support while bending over his board, adjusts up and down from 23½ to 32½ inches from the floor, and is of perforated cast aluminum with a cushion of 2½-inch molded foam rubber. The cushion is of oval shape to eliminate under-knee pressure, and is slotted for additional comfort. The back rest is responsive to every movement and is upholstered in 1-inch molded foam rubber. Both seat and back rest have covers—cloth or artificial leather—which can be removed for dry-cleaning or replacement. All parts of the chair, including the foot ring, are independently adjustable. The chairs are furnished with castors or steel glides.

A draftsman's description of this new chair and a catalog of the standard models may be obtained from the Cramer Posture Chair Co., Inc., Kansas City 6, Mo.

MT. CLEMENS FILTRATION PLANT USING INERTOL PAINTS SINCE 1931



Robert E. Hansen, Superintendent of Filtration, City of Mt. Clemens, Michigan, states: "Filter room reflects the cleanliness and attractiveness that one associates with water operation."

The following list shows some of the surfaces at the filtration plant protected and beautified with Inertol Paints:

Interior of Filter Basins: Torex Enamel Turquoise Blue 328, Royal Blue 329, White 311

Walkways over Filter Basins: Ramuc Utility Enamel Royal Blue 329

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Permutit

WATER CONDITIONING HEADQUARTERS FOR 35 YEARS

Burroughs Sells Microfilm Equipment

The insert shows the reader, which enlarges the photographed records made by the recorder.

The Bell & Howell Co. of Chicago, Ill., has arranged to sell to the Burroughs Adding Machine Co. of Detroit 32, Mich., all production of its new microfilm recording apparatus. The initial order placed by Burroughs amounts to several million dollars. Burroughs will distribute and maintain this equipment as an added service. With this equipment, 22,000 checks can be reproduced in 70 minutes on one 100-foot roll of film.

According to John S. Coleman, Burroughs president, "For a long time Burroughs has been supplying a complete line of figuring equipment ranging from intricate bookkeeping and accounting machines to hand- and electrically-operated calculators and adding machines. Much of its work has also been in helping organizations develop mechanized accounting systems which would reduce their costs and improve their efficiency, and in this connection it had need for a high-quality machine to photograph records in easily storable form. The new Bell & Howell microfilm equipment fulfills these requirements. It consists of a recorder and automatic feeder, a reader, and an automatic processor for volume users. The recorder can reproduce photographically both sides of a document simultaneously, and can change from 8mm to 16mm recordings.

THE NEW LOOK
for the
MIGHTY MIDGET

BREAK WITH POWER, SPEED, ECONOMY

The MIGHTY MIDGET reduces the cost of breaking asphalt and concrete to a minimum cost that is unequalled by other methods. Tamps backfill at an unbelievable pace; gives high density. All controls within operator's reach. Operates on 105 C.F.M. compressors.

Write for information to Departments "D"

R.P.B. CORPORATION
2751 EAST 11th STREET • LOS ANGELES, CALIFORNIA

rugged and right!

EST. 1860 McDonald

Diamond Line Curb Stops

For 92 years users have known that McDonald Diamond Line waterworks items are the last word in dependability and correctness. Produced from quality 85-5-5-5 metals with highest mechanical exactness, they're designed to give years and years of service.

The Diamond Patent Cap Inverted Key Curb Stop illustrated (Plate E-4717 Minneapolis Pattern) is an example of McDonald quality. This is a round way stop and is designed for copper service pipe at both ends. The inverted key avoids excessive wear and is a favorite with maintenance men. Key is loosened as pressure is applied downward in a turning motion. Sizes ½, ¾, 1, 1¼, 1½, and 2 inch. Also available in stop and drain pattern. Write for prices and information.

A. Y. McDONALD MFG. CO.
DUBUQUE, IOWA

BRASS GOODS • PUMPS • OIL EQUIPMENT

STREAMLINE COPPER PIPE IS THE IDEAL MATERIAL FOR UNDERGROUND SERVICE LINES — No Upkeep and Costly Repairs

A STREAMLINE Copper Service Pipe installation is practically vibration proof, settlement of filled earth, water mains, or buildings have little or no effect upon it. Its quality of ductility permits sufficient stretch to take care of a condition of this kind without injury or failure of the pipe.

STREAMLINE Service Pipe (Type K) is the most uniformly soft and pliable pipe possible to secure—it is kept that way through the use of the best copper obtainable for the purpose and through strict laboratory control through every phase of its manufacture.

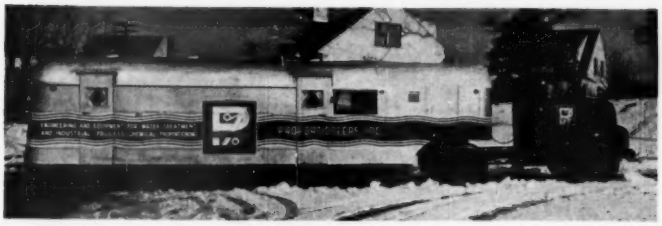
Copper does not rust or scale, thus insuring a maximum delivery and eliminating many costly water meter repairs and insuring the accuracy and long life of meter discs and chambers.

When STREAMLINE Copper Pipe is installed as a service line, it can practically be forgotten for years to come. It insures a lifetime, trouble-free piping system that, with the possible exception of abnormal earth or water conditions, need never be replaced.

WITH COPPER AND BRONZE TIME STANDS STILL

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

%Proportioneers, Inc.% Displays Demonstration Trailer



In this trailer sent out to tour the country by %Proportioneers, Inc.%, 99 Codding St., Providence, R. I., are approximately 5 tons of working equipment that demonstrate the feeding of chlorine dioxide, hypochlorite, abrasive slurries, and other water-treating chemicals: the Pur-O-Cel filter for swimming pools and low- and high-pressure proportioning pumps.

Diamond Alkali Elects New Officer

John A. Sargent has been advanced to the position of executive vice-president of the Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland 14, Ohio. Previously he held the positions of vice-president of finance and treasurer.

John A. Sargent

Another change is taking place at the company's Edgewood Arsenal plant, a chlorine-caustic-soda-producing organization; it is now undergoing expansion. Altogether, the company operates 13 plants for the production of alkalies, chlorine products, silicates, magnesia compounds, calcium chemicals, and chromates.

Life of Engine Parts Increased 100 Times

As a result of ten years of research, the Cooper-Bessemer Corp., Mount Vernon, Ohio, has found that operators of gas and diesel engines today get up to 100 times the life in vital engine parts that was possible a decade ago. This results from a series of progressive developments based on new principles uncovered in the recently completed study relative to the reduction of cylinder and piston ring wear in engines.

Complex laboratory equipment, built especially for this wear-study program and described in the book discussing the program, *Wear as Applied to Cylinders and Piston Rings*, is believed to be the only equipment of its kind in existence today. These mechanisms duplicate conditions actually encountered inside of engines, even to the point of varying the operating pressures throughout a cycle just as occurs inside the actual working engine cylinder.

The directors of the wear research program, Dr. F. P. Bundy, now with the General Electric Company's research laboratory, T. E. Eagan, and Ralph L. Boyer, collaborated in writing the book, which may be obtained from Cooper-Bessemer for $3.50.

Dr. Boyer has observed that, although it may be difficult to comprehend the full significance of the engine developments made possible by the research, ten years ago it was not unusual to find engine cylinders wearing as much as ten thousandths of an inch (.010) for every 1,000 hours of operation; today the achievement of a wear rate of three ten thousands (.0003) is considered general practice.

Save Money and Make a Better Patch

Your First Drum of NOSTRIP is our Best Salesman

Now that the Spring patching season is here—try Nostrip this year! Experience will prove that Nostrip makes bituminous patches hold and last, even under the most adverse weather conditions.

Patch work may even be carried on during the rain, and it is not necessary to dry out chuckholes or to use dry aggregates for stockpile or patching mix.

Most State Highway Departments in Mexico, the United States and the Provinces of Canada use patching materials made with Nostrip treated bituminous materials. Millions of gallons of refinery Nostrip treated asphalt are used yearly on state specifications. One drum of Nostrip will treat 5,000 gallons of bitumen for your patching purposes. Agents in all states and local warehouse stocks for immediate delivery.

Try Nostrip On Your Next Patching Job.

NOSTRIP DIVISION OF MAGUIRE INDUSTRIES, INC.

122 East 42nd St. New York 17, N. Y.

fast · · · economical · · · convenient

***point-of-use** record copying!*

the New

record DEXIGRAPH

Now you can easily photocopy administrative records right where they are used—and do it faster, simpler and in a wider range of sizes than ever before.

You can roll the new Record Dexigraph on casters from one department to another—wherever your records are located. It plugs into any standard electrical outlet. No plumbing or special wiring is required. Developing is an independent operation.

You can copy records up to 9¾" x 14" at same size or at any of five reductions down to 50% of original size. Larger records up to 14" x 17" can be copied at various smaller sizes for easier handling and filing.

You can make up to 300 exposures an hour. No previous experience is necessary. Positive adjustments and an automatic timer make it simple to operate the Dexigraph. Every copy is completely accurate, proofreading is eliminated. Paper pre-cut to standard filing and binding sizes reduces costs to a minimum.

To find out exactly what the Record Dexigraph can do for *you*, write now for your free copy of this new illustrated booklet. Photo Records Division, Room 232, Remington Rand Inc., 315 Fourth Ave., New York 10.

Remington Rand

FOR GREATER ADMINISTRATIVE EFFICIENCY—USE PHOTOGRAPHY

Rockwell Appoints New General Manager

Ralph G. Caouette has been appointed general manager of the Pittsburgh Equitable Meter Div., Rockwell Mfg. Co., Pittsburgh 8, Pa.

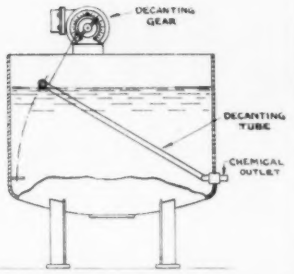
R. G. Caouette

With a varied experience ranging from production superintendent of the Delta division to manager of industrial engineering for all of Rockwell's plants, Mr. Caouette was recently made general manager of the Red Star Products division.

New Decanting Gear

The Worthington Pump and Machinery Corp., Water Treating Div., Harrison, N. J., is making a new decanting gear for lowering automatically the swing-pipe decanting tube into the chemical agitating tank to feed chemical to the softener in proportion to the raw-water flow. Its operation is paced by the raw-water meter.

The dial indicates the amount of chemical liquid in the tank. Connections are provided for the attachment of an electric low-level alarm. The decanting tube is positioned by a flexible cable attached to the shaped and grooved



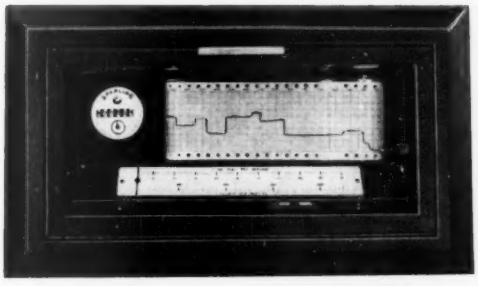
drum. Rotation of the drum pays off cable and lowers the decanting tube. The contour of the drum compensates for the inaccuracy which would otherwise be introduced by the radial path described by the receiving end of the tube during its downward travel.

New Line of Mimeograph Drawing Instruments

The A. B. Dick Co., 720 W. Jackson Blvd., Chicago 6, Ill., has announced a new line of mimeograph drawing instruments manufactured by the molded plastic process—never before used for the production of mimeograph lettering guides, styli and screen plates.

The result is lettering guides that do not slip under the T square or slide on the surface of the stencil sheet. The new dual styli each have two working ends.

SPARLING MAIN-LINE METERS



Accurate MAIN-LINE Measurement Pays

Efficient water works operation is based on actual figures — not guesswork! The Totalizer-Indicator-Recorder shown above gives you facts you need to know about flows in your lines 2-inch and up. The 60-day chart furnishes invaluable records. Autometered controls, too, may be added when you install a SPARLING Meter.

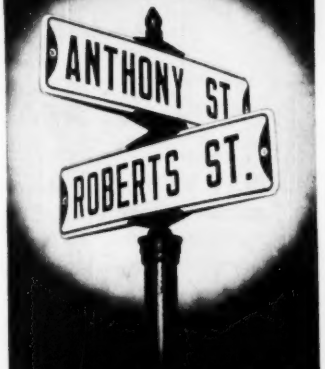
Quotations and Bulletin 310 come at your request

J. W. SPARLING Manufacturer of WATER MEASURING EQUIPMENT

LOS ANGELES 54....Box 3277 Terminal Annex
CHICAGO 8.....1500 South Western Ave.
BOSTON 8.....6 Beacon Street
DALLAS 1.....509 North Ervay Street
622 Broadway.....CINCINNATI 2
101 Park Avenue.....NEW YORK 17
1932 First Avenue.....SEATTLE 1

Beautiful, Legible, Low-Priced

STREET NAME SIGNS



WRITE FOR CATALOG

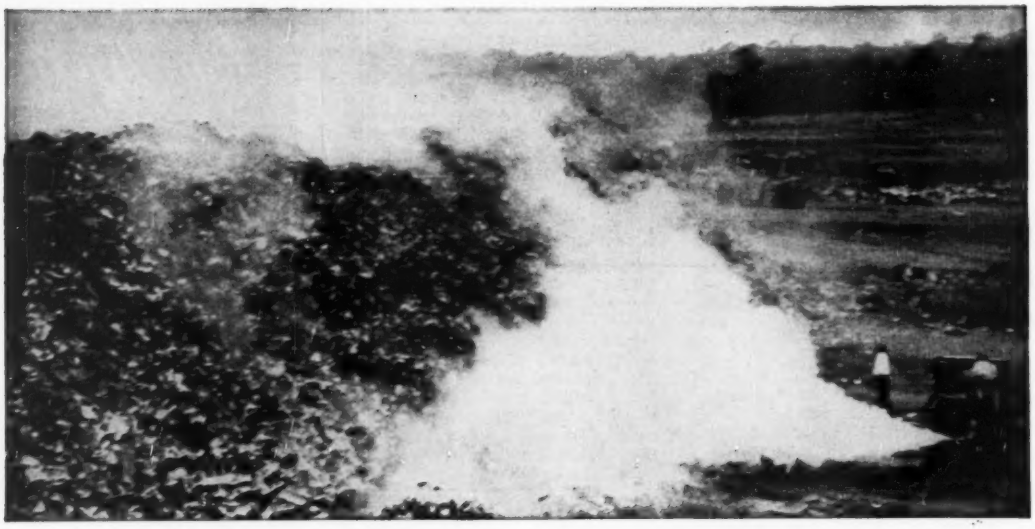
Cataphote Corporation

TOLEDO, OHIO

PROVIDE FOR TIFA IN YOUR BUDGET

...FOR FLY AND MOSQUITO CONTROL

...FOR BETTER HEALTH



...DEATH-DEALING FOG FOR INSECTS

SOLVE YOUR fly, mosquito, weed and health problems *quickly* and *efficiently* with TIFA . . . a compact, easily handled applicator, powered by its own standard-make gasoline engine.

TIFA discharges the newly developed as well as older type insecticides and hormones *of the selected particle size in a true, clean fog* . . . spreads quickly over wide areas . . . clings to all objects in its path . . . permeates the smallest crevices.

TIFA is essential to your community's health and well-being. Use TIFA on garbage and fill dumps, in recreational areas and swamps. PORTABLE . . . BUILT TO LAST . . . ECONOMICAL. The Health Department of a famous city estimated that TIFA insect control costs less than 2% of previous methods.

TIFA TODD INSECTICIDAL FOG APPLICATOR

Write for illustrated folder on sensational TIFA—full details on how it operates, what it does and official comments on its astonishing effectiveness.

A Product of

COMBUSTION EQUIPMENT DIVISION

TODD SHIPYARDS CORPORATION

81-16 45th AVE., ELMHURST, QUEENS, N. Y.

LeTourneau Tournapull-Scraper Tours to Mexico City

This 20,700-pound earthmoving machine, manufactured by R. G. LeTourneau, Inc., Peoria, Ill., using 3.4 gallons of diesel fuel to average 16.6 miles per hour, was driven from Laredo, Texas, to Mexico City, a distance of 763 miles of city streets, highways, and mountainous country—in 46 hours. The machine was driven in order to save the time that would have been required for the acquisition of rail permits; incidental decrease of expense was not a factor in the decision to make the trip.

Territorial Sales Changes For Detroit Diesel

A. W. Anderson Philip E. Jackson

The Detroit Diesel Engine Div., General Motors Corp., 13400 West Outer Drive, Detroit 28, Mich., has announced that Philip E. Jackson, formerly zone sales representative in the south Central states, has been transferred to the division's middle Atlantic zone, with headquarters in Cleveland, Ohio, and A. W. Anderson, will take over Mr. Jackson's old territory, operating out of New Orleans, La.

Germicidal Hand Detergent For Sewage-Plant Employees

There is very real danger that sewage-treatment-plant workers may carry or contract infection as a result of careless handling of the plant product. Emulsept is an initial-contact germicide and detergent that provides residual sanitation after rinsing of the hands washed in Emulsept.

This product's primary value is in removing bacteria and other microcontaminants from under finger-nails, cuticle, and cracked and top skin. The quaternary ammonium detergent germicide, placed in dispensers at wash basins, gives an emollient residual sanitizing effect from an odorless, potent germicide that is sufficiently detergent to remove easily the toughest grease and soil. The fatty portion of the Emulsept molecule gives the skin a soft, smooth feel without excessive dryness or harshness even with repeated use.

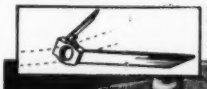
One ounce of Emulsept diluted with water serves also as an effective space or surface deodorant.

Emulsept is made by the Emulsol Corp., 59 E. Madison St., Chicago 3, Ill.

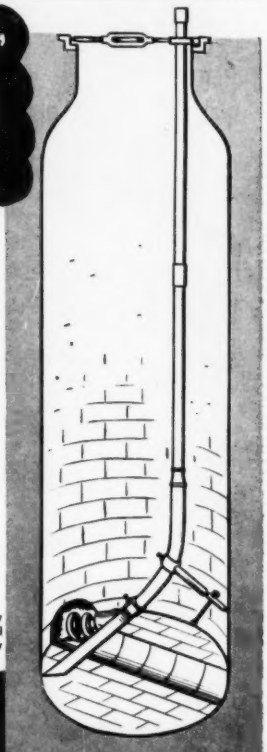
NEW—"FLEXIBLE" LOWER MANHOLE JACKS SAVE TIME AND WORK AND EQUIPMENT

"FLEXIBLE" experience again provides new methods of simplifying tough jobs. These two new Lower Manhole Jacks bring sewer and line cleaning operations another step further into the open. They also speed tool changing. Note how the coupled rod guide is quickly, firmly, simply anchored at the bottom of the manhole. Also note that the face of the bell is held away from the lip of the sewer line itself. This enables operators to see roots before they jam tight in the rod guide.

Adjustable Back Jack (Optional use). Perfect for getting additional anchorage of rod guide. Sold separately.



Adjustable Foot Jack. Ideal for use with proven "Flexible" Steel Rod system of cleaning sewer lines. Sold separately.



Lower Manhole Jacks in position. Clear working face of sewer is provided as well as comfortably small amount of rod bend into sewer line.

ASK YOUR NEAREST "FLEXIBLE" OFFICE TODAY FOR FULL INFORMATION

FLEXIBLE SEWER-ROD EQUIPMENT CO.

9059 Venice Blvd., Los Angeles 34, California

141 W. Jackson Blvd. Chicago, Ill.
401 Broadway New York 13
147 Hillside Ter. Irvington, N. J
P. O. Box 165 Atlanta
2011 Central Ave. Memphis, Tenn.
801 E. Excelsoir Blvd. Hopkins, Minn.
29 Cerdan Ave. Roslindale 31, Mass.
P. O. Box 447 Lancaster, Texas
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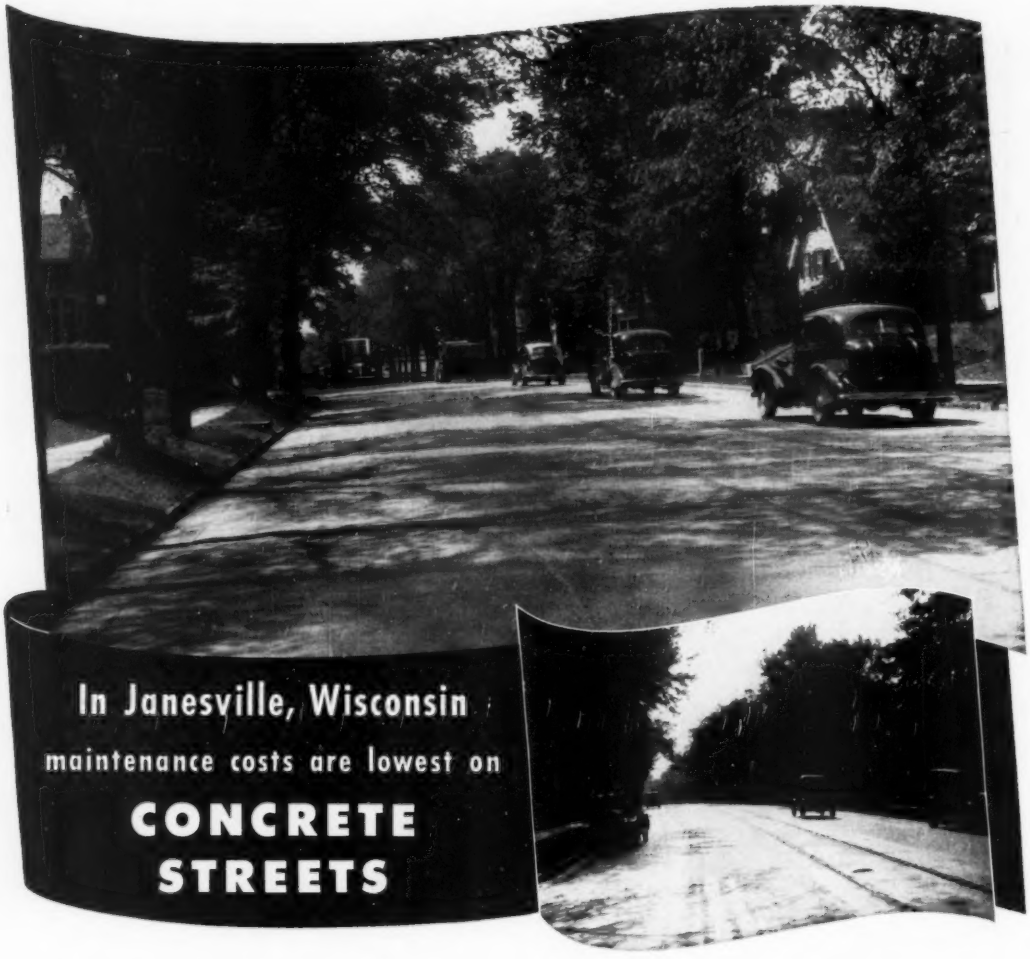
3786 Durango Ave. Los Angeles 34, Calif.
909 N. Homewood Ave Pittsburgh 8, Pa.
4455 S.E. 24th Ave. Portland 2, Ore.



In Janesville, Wisconsin maintenance costs are lowest on CONCRETE STREETS

ACCORDING TO LATEST available figures, covering ten consecutive years, it costs only $32.00 per mile per year to maintain the concrete streets in Janesville, Wisconsin. The average annual maintenance cost per mile for the three other types of pavement ranged from $106.33 to $170.74—four to six times as much as concrete pavements!

In the words of City Manager Henry Traxler, "The low cost of maintaining our concrete streets is especially significant because most of the heavy local and arterial traffic travels over our concrete streets. Also, since concrete streets are less frequently closed for repairs, we very seldom need to inconvenience drivers by re-routing traffic."

The experience of Janesville with the outstanding service and economy of concrete streets is repeated in hundreds of communities across the nation. Concrete, which usually costs less to build than other pavements of equal load-carrying capacity, also costs far less to maintain and it lasts much longer. That results in ***low annual cost,*** the real measure of pavement economy.

If you would like more information about this ***low-annual-cost*** pavement, write for helpful free booklet, *"Design of Concrete Pavements for Municipal Streets."* Distributed only in the U. S. and Canada.

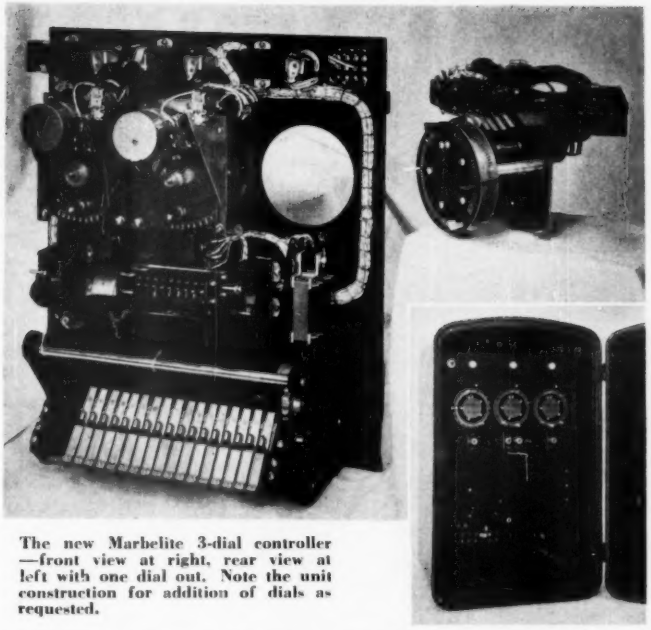
●

Upper photo: recent view of Milton Avenue, part of State Route 26, built in 1924. Lower photo: same street in 1926.

PORTLAND CEMENT ASSOCIATION

DEPT. A4-4, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work



The new Marbelite 3-dial controller —front view at right, rear view at left with one dial out. Note the unit construction for addition of dials as requested.

City purchasing agents, traffic engineers, and city officials connected with local traffic problems and the purchase of signal equipment will find the new Marbelite catalog, *Traffic Signals and Traffic Controls*, essential to a practical understanding of this manufacturer's line of traffic signals and controls. In it are described the new Marbelite traffic controllers and accessories which add the special features in accordance with the nature of the traffic at each intersection.

Included is a price list of Marbelite traffic beacons and diecast aluminum signals. Full specifications are given for 12- and 16-circuit controllers as well as multi-dial controllers, with general instructions for installing, operating, and servicing non-interconnected and interconnected controllers. A monograph discusses the relative advantages of the pre-timed controller and the traffic-actuated controller. Officials who select and purchase traffic signals and traffic controls may obtain the catalog from The Marbelite Co., Inc., 26 Warren Street, New York 7, N. Y.

Byron Jackson Film Explains Pump Operation

The 16mm color film in production by the Pump Division of the Byron Jackson Co., Los Angeles 54, Calif., for showing to civic and industrial groups concerned with water supply, outlines the problem of lower water tables and in animated sequences shows the features of the submersible pump that make it possible for the motor of the pump to work under water to achieve great effective pumping depths.

TARCO

can carriers

"Street Sweeper's Friend"

Single-piece welded frame. For one or two cans. Choice of tiring: plain steel, solid rubber, tough-walled pneumatics. Bearings: plain or roller. Full swiveling caster wheels. Silent can clamp. Safety warning flag. Balanced and light running.

Tarco welded carriers are STRONG.

TARRANT MFG. CO.

East Ave. Saratoga Springs, N. Y.

Permanent Ground Water Supply

Many locations throughout the country, especially those near lakes and rivers, offer sites for permanent underground water supplies. Whether your particular site will afford a permanent ground water supply can be predetermined accurately by our engineering staff who are ground water specialists.

Ranney water collectors are designed to produce high quality, low temperature water at low initial cost and minimum operating costs.

Your inquiry would be welcome.

RANNEY METHOD WATER SUPPLIES, INC.

Ranney Water Collector Corp., of New York

Water Supply Engineers and Contractors

Executive and Engineering Offices: Columbus 9, Ohio

If Service is your job . . . Demand

REEVES ARMY TWILL

For longer-lasting, better-looking uniforms

Consider how important these two benefits are for your industrial uniforms and work clothes.

1. **Better appearance**—Reeves Army Twill cuts and tailors exceptionally well. It washes and irons well. It's comfortable to wear. These factors boost employee morale and build customer good will.

2. **Longer wear**—means big savings for years to come, because "first" costs are spread out longer. Thus the high quality of Reeves Army Twill is the most economical fabric you can specify!

Reeves Army Twill is a thoroughly tested, high-quality, combed cotton, Sanforized, fabric. (Residual shrinkage is less than 1%.) Over 100 million yards have been delivered to the Armed Services—exceeding rigid Government specifications. It comes in a wide range of vat-dyed colors fast to sun, water and perspiration. It is one of many durable fabrics made by Reeves for industrial purposes. Write for full details concerning your industry.

"FROM COTTON TO CUTTER"

REEVES BROTHERS, INC. 54 WORTH STREET, NEW YORK 13, N. Y.

REPRESENTATIVES IN: *Akron • Atlanta • Boston • Chicago • Dallas • Los Angeles • Philadelphia • Portland, Oregon • St. Louis • Montreal • Toronto*

Thompson Sales Representative for Dresser

N. J. Thompson has been appointed sales representative in the Rocky Mountain area and on the West Coast by the Dresser Mfg. Div., 59 Fisher Ave., Bradford, Pa.

N. J. Thompson

Before joining Dresser, Mr. Thompson was with the Thompson Pipe & Steel Co.; in his new capacity he will consult with water-works operating personnel and engineers on both new-line and maintenance problems. Headquarters will be at Denver, Colo.

Fast Multi-Copy Work

An electric fanfold writing machine to produce more multi-copy work. Manufactured by Underwood Corp., 1 Park Ave., New York 16, and using continuous forms, its standard typewriter keyboard makes the machine adaptable for use by all typists.

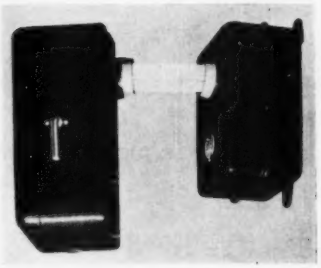
New Parts Depot For Caterpillar

The Caterpillar Tractor Co., Peoria, Ill., is constructing a new parts depot in Indianapolis, Ind.; construction will be completed this summer. It will serve Caterpillar distributors in Indiana, Illinois, Wisconsin, Michigan, Iowa, Missouri, Kentucky, Ohio, Tennessee, Pennsylvania, West Virginia, Virginia, Maryland, and Ontario and Quebec, Canada.

Photoelectric Smoke Indicator

The new photoelectric smoke indicator made by Photoswitch Inc., 77 Broadway, Cambridge 42, Mass., indicates the density of smoke passing through the flue or breeching of a heating or power plant, and signals when this density approaches the values prescribed by municipal smoke ordinances.

Consisting of a photoelectric control and light source, mounted on opposite sides of the flue with the light-source beam projected across the flue onto the photoelectric control, the type A20C-1 has a sensitivity adjustment that permits the equipment to be set to signal when smoke density approaches whatever value is prescribed as maximum by the local municipal smoke ordinance. Supplementary equipment available includes bell alarms to signal excessive smoke, densimeters to give continuous indications of smoke density, and recorders to record the time of day at which excessive smoke passes through the stack.



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This photoelectric indicator can make a smoke-pollution ordinance really effective.

Look!

ONE-HAND

Quality

LINE LOCATOR

A soundly designed sturdily built precision *Quality* locator

The *Quality* locator that has set new high standards for performance

WILKINSON

Quality

LINE LOCATORS

used by leading utilities and municipalities. It is light but powerful —a simple one-man tool that does EVERY job.

Regardless of depth, no part of your underground pipe system can escape this electronic sleuth.

LIGHT • HANDY • POWERFUL

WILKINSON *Quality* LINE LOCATOR'S skill in detection is unhampered by powerful broadcasting stations or high tension lines. WILKINSON does the sorts of jobs that stymie ordinary devices.

Equip with a PROVEN *Quality* Professional Instrument

WILKINSON LINE LOCATOR

LIGHT • COMPACT • POWERFUL

Write for complete literature and prices

Originators of the quality, light, compact, all-purpose underground Locator.

WILKINSON PRODUCTS CO.

P. O. Box 1774, Wilshire-La Brea Station, Los Angeles 36, Calif.

The Election of November 2, 1948

GAVE NO MANDATE FOR SOCIALISM

The President and those who support his legislative program have objected to the substance of my previous editorial, which appeared under this headline: "Now is the Time to FIGHT SOCIALISM in Washington."

In that editorial I explained how Washington is poised to follow the disastrous policy of forcing industry to skimp on new plants and new equipment. That policy landed Britain in the numbing embrace of the Socialists. I cited the experience of Britain to show how such skimping on industrial tools can bring a nation to economic stagnation . . . and Socialism.

The President, in his recent Jackson Day speech, brushed aside this warning . . . "They are again trying to frighten the people with the old worn-out bugaboo that Socialism is taking over in Washington." Senator Francis J. Myers of Pennsylvania asserted that I was guilty of "warfare against any reasonable effort to keep our system of free enterprise working."

These criticisms may be sincere. But they are not well-founded.

I want to show why they are not well-founded by basing this editorial on Washington rather than Britain.

In Washington the Administration has proposed a legislative program, the key parts of which would clearly put the country far on the road to Socialism. Let us see how.

There are two steps in the process.

FIRST. The government by its taxation program undermines private industry so that it cannot provide itself with the necessary new plant and tools.

SECOND. The government itself steps in to provide the plants and equipment that it has blocked industry from getting. *That is Socialism.*

Here is how Washington is promoting Socialization of the steel industry – and of other industries.

Steel has been expanding its capacity and improving its equipment chiefly by plowing back its profits. During the last three years it has spent $1.4 billion for new plants and new tools. That was more than the companies had available from their own earnings. But profits provided more than half of that money – more than $700 million. The remainder came from loans and from depreciation reserves set aside out of the earnings to replace worn-out equipment.

Profits must continue to provide the funds needed to pay for the bulk of the steel industry's necessary expansion. That is because private citizens, their income slashed by heavy taxes, have not been willing to buy steel stocks even at prices ruinously low for the companies and their present stockholders. The stock market currently prices the mills and other facilities of the nation's principal steel-producing companies at far less than fifty percent of the cost of reproducing them.

Let us take another example. Profits are essential to expansion in the electric light and power industry also. This year private companies are planning to buy $2 billion worth of new plant and equipment. To do that without going overboard in debt, they must sell to the public some $300 million worth of common stock. A squeeze on their profits would make that sale virtually impossible.

For tens of thousands of small business enterprises profits afford virtually the only practical source of funds for new equipment and expansion.

In the face of these and many other examples that might be cited, what is the most effective way to prevent industry from re-equipping itself and expanding its capacity to meet our essential needs?

Obviously, it is to cut down profits. And that is what the Administration is trying to do. The President has declared that steel prices are too high, and is demanding that Congress raise taxes sharply on all corporations.

There you have the first step toward socializing industry.

Next comes step two. Have the government supply the tools and equipment which, by taxation, it prevents industry from getting.

The Administration has proposed legislation to carry out this second step. It is called the "Economic Stability Act of 1949," for short, the "Spence Bill."

This bill gives the President the power to provide industrial facilities – in steel, power, or any other industry – where he finds that a shortage is hampering or is likely to hamper the economy.

True, the bill says that the government is not to construct new plants if private companies will do it through government loans, on terms prescribed by the President. That may be just one step short of complete socialization. But it is only a short step. And the Spence Bill authorizes the government to take that step.

By itself, the Administration's "Stability Act" sounds harmless enough. It would have the government build plants only as a last resort. But it provides also that if private enterprise cannot turn out all the goods the country needs, the government can and should step in and provide the equipment to do it.

Now, take that power together with an Administration tax program that undercuts the ability of private enterprise to supply the new plants and equipment it needs out of its own earnings. That combination promotes government ownership and operation of industry.

And that is Socialism.

The American people, of course, have the right to live under any system they choose – Capitalism, Socialism, Fascism, Communism, or what-have-you. But before Socialism or any other "ism" is imposed upon us from above, the people should know the facts. If this editorial shall have contributed in some small degree to that end it will have served its purpose.

The election of November 2, 1948 gave no mandate for Socialism.

James H. McGraw, Jr.

President, McGraw-Hill Publishing Company, Inc.

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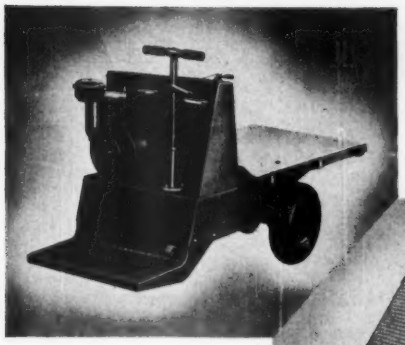
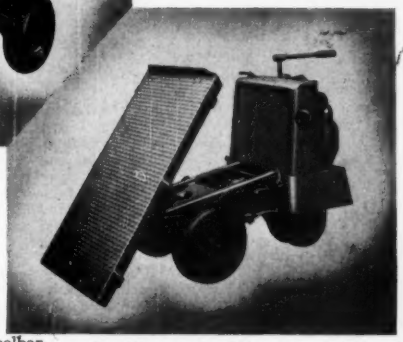
Improvements On the Moto-Bug



The riding step reduces operator fatigue.



With the platform body tilted.

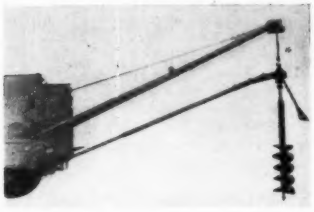
The Moto-Bug, the power-wheelbarrow manufactured by the Kwik-Mix Co., Port Washington, Wis., a subsidiary of the Koehring Co., 3026 West Concordia Ave., Milwaukee 10, Wis., has been given an optional 4-foot stake platform body that is interchangeable with the 10-cubic-foot-capacity hopper body, an optional riding step for the operator, and a dual wheel on the direct steering mechanism.

By adding the flatbed platform the machine has been given a 1,200-pound capacity for truck-handling loose loads, skids, and bins. The platform body may be tilted for unloading certain kinds of heavy material.

In connecting the positive steering hand lever to a dual rear wheel, a differential action is achieved that permits more ease in guiding and spotting the Moto-Bug.

The machine is powered by a standard 4-hp gasoline engine at speeds from 1½ to 4 mph in forward and reverse directions. Built with a 33-inch width, the Moto-Bug clears doorways, narrow aisles, and turns in its width.

Light, Quick Pole-Hole Digger



Municipalities owning overhead electrical lines or doing their own setting of street-lighting poles and traffic standards will be interested in a pole-hole digger which can dig a hole and set a pole in a matter of minutes. Made by the Minnetonka Mfg. Co., makers of Tel-E-Lect products, 9601 Minnetonka Blvd., Minneapolis 16, Minn., the pole-hole digger consists of an auger fastened by a safety shear bolt to a shaft that hangs from a drive shaft running to the rear of the truck. The digger is powered by the truck's engine through a power take-off extended to the rear of the truck.

PREMAX

Send for this Analysis

House Numbering Systems

A concise report on House Numbering Systems is available to all municipalities who want to avoid the confusion and duplication which exists in so many localities. Under this better method, the number becomes a definite locating address in whatever part of the city it is located.

Send for this free Bulletin today and see how a great many cities have successfully solved their problem.

PREMAX PRODUCTS
DIVISION CHISHOLM-RYDER CO., INC.
4946 Highland Av., Niagara Falls, N. Y.

South Bend
GUTTER-SNIPE
Model "E" Pick-Up Street Sweeper

Sweeps 6 feet wide
Holds 1¼ yards dirt
Turns in 19-ft. circle
Can sweep up a 10% grade
Has three sweeping speeds

We also manufacture SOUTH BEND "Big 6" Street Flushers, Bituminous Distributors, Bituminous Maintenance Units, and Gravity and Pressure Sprinklers.

Municipal Supply Company, South Bend 23, Indiana, U. S. A.
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HAND
STORAGE BATTERIES

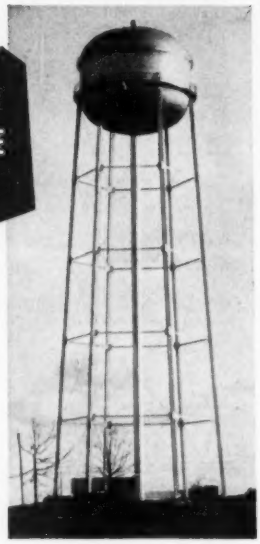
EXTRA HEAVY-DUTY*

For Police Radio Cars, Sanitation Trucks, Snow Plows, Sweepers, Emergency Trucks, Ambulance and Fire Apparatus.

*Heavy, ultra low antimony plate frames . . . hand-pasted, tank-formed . . . heavy glass mats . . . acid and heat resisting microporous rubber separators . . . splash decks . . . double weight cell covers . . . highest grade hard rubber containers.

The Hand Laboratory, Nyack, N. Y.

DEPENDABLE WATER SERVICE



● For almost a century Cole elevated tanks have provided a dependable water supply for mills and communities. Cole quality is assured by careful, experienced designing and watchful supervision from blueprint to finished tank.

Send us your inquiries for tanks from 5,000 to 2,000,000 gallons — stating capacity, height to bottom, and location. Write for latest Cole catalog—"Tank Talk."

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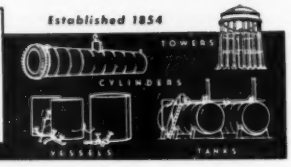
MANUFACTURING CO.
NEWNAN, GA.

Established 1854



Newly Improved
OK CHAMPION POWER SEWER CLEANER

DON'T LOSE Sewer Capacity

Clear your sewer lines regularly. Keep up full carrying capacity and you save money—in lower maintenance cost and avoiding costly backwash. Order OK Champion Power Sewer Cleaner equipment and your men remove roots, dirt and other obstructions from any storm or sanitary sewer in ONE operation. All men work above street level.

OK Champion cleaners are regularly clearing sewers all over the world. New improvements make them better than ever. Send for literature.

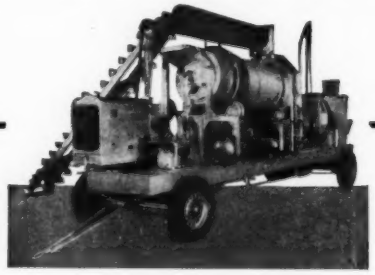
CHAMPION CORPORATION
Hammond, Indiana

GET FULL FACTS NOW!

CHAMPION CORPORATION, 4716 Sheffield Ave., Hammond, Ind.
Please send information on how the Improved OK Champion Power Sewer Cleaner cuts sewer cleaning costs.

NAME.....TITLE.....

ADDRESS.....



This Portable Asphalt Plant is Suitable for All Paving Maintenance

Almost any type of pavement can be repaired economically and efficiently with a White Portable Asphalt Plant. Asphalt, brick, concrete, macadam, can be easily patched or resurfaced.

It will match any bituminous surface. Produces for immediate hot application or makes mix for deferred cold laying.

Contains internally fired rotating dryer, pug mill mixer, bituminous heating kettle, volumetric measurement, air controls. Mounted on pneumatic tires, or furnished for stationary operation. Capacities 4, 8, 12, 25 tons per hour.

Write for Catalog

Elkhart **White Mfg. Co.** Indiana

Parrish Retires From International Harvester: Other Personnel Changes

W. M. Parrish, assistant sales manager, manufacturers' sales, industrial power division of the International Harvester Co., 180 North Michigan Ave., Chicago 1, Ill., has retired after more than 24 years' service. Mr. Parrish has worked directly with manufacturers of allied equipment used with his company's products, with dealers, and with district sales offices. He established the industrial power division.

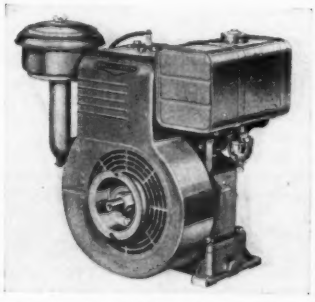
The former eastern sales region of the Motor Truck Division of the International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill., has been divided into two regions; the eastern, covering Albany, Boston, New York, Philadelphia, and West Haven, operating 29 company-owned sales and service branches; and the east-central, operating 26 branches with district headquarters at Baltimore, Buffalo, Cleveland, Columbus, Harrisburg, Pittsburgh, and Syracuse.

W. M. Parrish

J. T. Sullivan will continue as manager of the eastern region; L. A. Hanson, formerly supervisor of parts and service merchandising of the motor truck division, has been appointed manager of the east-central region.

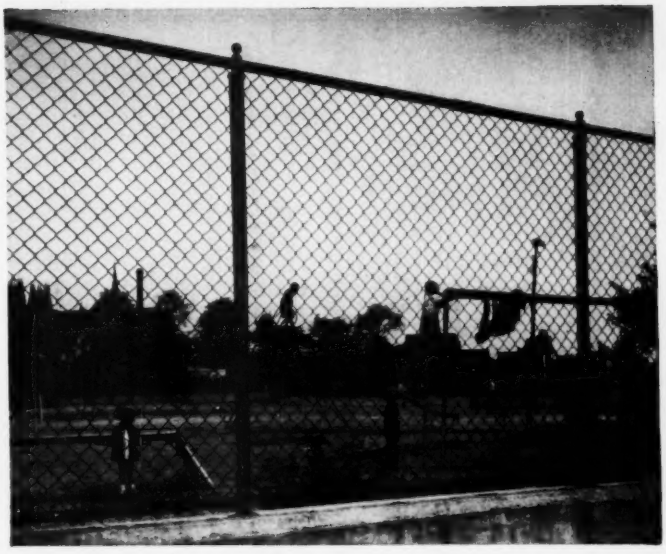
Other personnel changes include: J. C. Bulleit, succeeding Mr. Hanson; J. L. Teach, manager of fleet, national, and manufacturers' sales at New York City; C. L. Sears, motor truck sales district manager at Columbus, Ohio.

Briggs & Stratton's New Models



Three new models in the current line of 4-cycle, air-cooled, gasoline engines has been announced by the Briggs & Stratton Corp., Milwaukee 1, Wis. Model 9 is rated at 2.16 to 3.1 hp; model 14, 3.56 to 5.1 hp; model 23, 6.5 to 8.25 hp.

The models have the Briggs & Stratton Magnematic ignition system producing high voltage at very low speeds.



Planned for protection ...with CYCLONE FENCE

THE civic authorities who designed this playground planned for protection by specifying Cyclone Chain Link Fence. For Cyclone—the world's most widely-used property protection fence—has the stamina, the toughness and the special design and construction features which give it the extra strength fencing needs on a public project. Cyclone assures long service, stays taut and true, despite difficult conditions of climate, weather or terrain.

For power plants, waterworks, pools, stadia—for every municipal project where trespassers must be excluded or "entrance and exit" traffic controlled—there is a place for Cyclone. And if you specify Cyclone in the original plans, you'll get the full benefit of design harmony and installation economy.

Because Cyclone is available in 14 types, it is adaptable to all projects. For complete information about all types of Cyclone, just send for our free, informative fact book—"Your Fence." Or if you prefer—one of our sales engineers will consult with you and recommend the fence most suitable for your needs—without obligation, of course. And no matter what kind of project you are considering, just remember this: *No job is too large—no job is too small for Cyclone.*

CYCLONE FENCE DIVISION
(American Steel & Wire Company)
WAUKEGAN, ILLINOIS · BRANCHES IN PRINCIPAL CITIES
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S CYCLONE FENCE

CLIP THIS COUPON SEND IT TO—

Cyclone Fence, Waukegan, Ill., Dept. B-49
We'll send you our free, 32-page book on fence. It's full of facts, specifications, illustrations. Shows 14 types of fence. Before you choose any fence for your property, get the facts about Cyclone.

Name.....
Address.....
City..... State.....
Interested in fencing: ☐ Industrial; ☐ School; ☐ Playground; ☐ Residence. Approximately ..... feet.

USS
UNITED STATES STEEL

How temporary

is your "temporary" help?

You know from experience that it's usually not temporary at all . . . that almost invariably it becomes a *permanent* boost in your current operating expense.

For the day is past when the problems of office operation could be met profitably with stop-gap measures. The increased tempo of today's business demands modern methods and equipment. It requires mechanized efficiency to keep your office payroll stable.

With the proper machines for each job, your personnel can do their work much faster with less effort. There's less need for emergency hiring even during peak periods. Up-to-the-minute data and figures are on your desk when you reach for them . . . overtime is pared to a thrifty minimum.

Why not call in your local Burroughs representative today for a discussion of your office problems? Burroughs Adding Machine Company, Detroit 32, Michigan.

WHEREVER THERE'S BUSINESS THERE'S **Burroughs**

THE MARK OF SUPERIORITY IN MODERN BUSINESS MACHINES

Atlantic City's Convention Leadership

The men behind the sales program of Chalfonte-Haddon Hall: (Seated left to right) Joseph I. McDonell, general manager; John H. Lippincott, manager of Chalfonte; (standing, left to right) E. D. Parrish, director of sales; Ellsworth Sooy, convention manager; Lawrence B. Rough, executive office, sales; John R. Stubblefield, director, field sales, New York and New Jersey; Harold R. Taylor, in charge of Boston office and New England sales.

The postwar development of Atlantic City as a favorite vacation and convention resort has exceeded all calculations of many of its hotel operators. Leeds and Lippincott Co., for more than 50 years owners and operators of the Chalfonte-Haddon Hall Hotels, reports that at the completion of its second year of post-war operation ending in 1948, the hotels have been used to a greater extent than at any time in their pre-war history. Of this business, 65% of the clientele served came to the hotels for rest and relaxation. The remaining 35% represented visitors attending conventions.

Water Conditioning Firms Join Forces

The Elgin Softener Corp., Elgin, Ill., and the Illinois Water Treatment Co., Rockford, Ill., have joined forces in order, according to Chester T. McGill, head of Elgin and widely known for his development of the zeolite softener of "double-check" design, to provide more comprehensive water conditioning service at minimum cost through the consolidation of manufacturing operations.

Under the new set-up, each company will maintain its name identity and personnel.

Two of the personnel of Illinois Water Treatment, W. S. Morrison and P. H. Caskey, were pioneers in the development of de-ionizers.

Asphalt Institute Establishes Atlanta Office

William H. Mills, formerly chief of the Airport Division of the Civil Aeronautics Administration at Atlanta, Ga., has been appointed district engineer in charge of the office there, established by the Asphalt Institute, 801 Second Ave., New York 17, N. Y.

Mr. Mills' experience includes 20 years in the South Carolina State Highway Department and five years of active duty with the U. S. Corps of Engineers.

Give the underprivileged kids in your community a "break" —give them more and better facilities for healthful recreation. Well-lighted playgrounds, alive with boys and girls joyful and laughing at play, are a good sign of a good town. The REVERE organization will gladly help you plan.

Revere
ELECTRIC MFG. CO. CHICAGO, U.S.A.

FLOODLIGHTING
. . . PARKS
PLAYGROUNDS
SANDLOTS
ETC.

New 20°—12° and 50° Flood for long range lighting. Specifically designed for Sport Field Lighting, Play Lots, etc. Has many unusual features for Safety, ease of wiring and maintenance.

WRITE FOR CATALOG

REVERE ELECTRIC MFG. CO.

6015 Broadway Chicago 40, Ill.

ZERO-LASTIC
Sealing Compound

Zero-Lastic Oil Resisting Compound.

Zero-Lastic Oil Resisting Joint Material for Airports.

Zero-Lastic Vertical Joint Filler.

Zero-Lastic Sloping Joint Filler.

Zero-Lastic Compound meeting Federal Specifications SS-F-336a; put up in 50 lb., 25 lb. and 10 lb. packages.

Zero-Lastic Hair-Line Crack Filler.

Write for prices on these materials for Municipal and Public Work.

Rubberized Oil Plastics Not Inc.
6049 West 65th St.
Chicago 38, Illinois

CAST IRON PIPE

Bell and Spigot
Water Main Pipe
Class 150 and 250

2,100 ft. 4 in.
11,500 ft. 6 in.
19,250 ft. 8 in.
14,250 ft. 10 in.
3,000 ft. 20 in.
2,100 ft. 24 in.

12-ft. and 18-ft. lengths

Immediate delivery, any quantity
Write—Wire—Phone

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SONKEN-GALAMBA CORPORATION
2nd and Riverview (X-423)
Kansas City 18, Kansas
THatcher 9243

KILL Weeds At The Roots!

Goes to the root of your weed problem. Use in economical solution where no vegetation whatever is desired. Sterilizes the soil so windblown seeds cannot normally sprout in it. Penetrates to the roots—and KILLS! This modern chemical weeding saves money and hours of backbreaking labor.

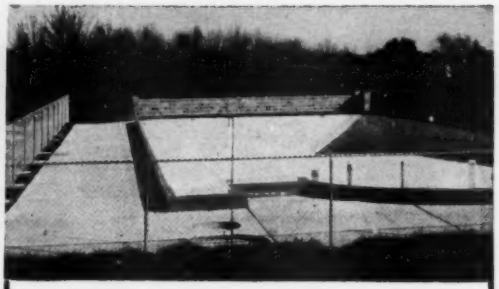
E.W.T. SELECTIVE WEED-KILLER

(2-4-D)

Works down thoroughly to the roots of brush, dandelions, plantains, poison ivy, ragweed, sumac and other plant pests, but will not kill most turf grasses. Best used for maintaining beauty of lawns and fairways.

Write for literature explaining these tested DOLGE products fully and giving specific directions for their use.

THE C. B. DOLGE CO.
WESTPORT, CONNECTICUT



Here's a Watchman Trespassers Respect!

Tamper-proof, low in cost and virtually maintenance-free, Realock Chain Link Fence® provides maximum protection against arson, theft and trespassing.

Let us submit estimates for fence material ready for installation or covering erection by trained crews. Write to our nearest office.

® Reg. U. S. Pat. Off.

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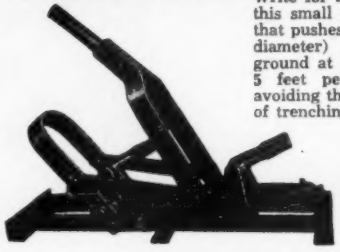
WICKWIRE SPENCER STEEL DIVISION
361 DELAWARE AVENUE · BUFFALO 2, NEW YORK
THE COLORADO FUEL AND IRON CORP.
CONTINENTAL OIL BUILDING · DENVER 1, COLORADO
THE CALIFORNIA WIRE CLOTH CORP.
1060—19TH AVENUE · OAKLAND 6, CALIFORNIA
BRANCHES & DISTRIBUTORS IN KEY CITIES EVERYWHERE

GIANT

Reduce Pipe-Laying Costs with a GIANT Pipe Pusher



Write for booklet telling of this small inexpensive tool that pushes pipe (up to 15" diameter) through the ground at the rate of 1 to 5 feet per minute, thus avoiding the heavy expense of trenching.

Address Dept. P

GIANT MFG. CO.
Council Bluffs, Ia.

your city deserves the best—
UNITED STATES BRONZE TABLETS...

for signs, statues, cornerstones, homes, hospitals, schools, municipal buildings

One of the country's largest plants devoted exclusively to bronze tablet work assures you of the *finest* in bronze at *lowest* prices. Free samples, sketches, estimates—prompt mail service. WRITE TODAY FOR FREE CATALOG!

"Bronze Tablet Headquarters"
UNITED STATES BRONZE SIGN CO., INC.
570 Broadway, Dept. AC, New York 12, N. Y.

A Study in Contrasts

In 1923, this FWD truck with an underbody maintenance blade operated by hand from the frame of the truck was considered quite adequate for smoothing out the bumps of dirt on gravel roads.

Today, Arapahoe County, Colo., uses a Model HG FWD Maintainer, manufactured by the Four Wheel Drive Auto Co., Clintonville, Wis. This machine also hauls the materials from the pit in the dump body and moves fast from job to job as well as in actual scraping operations.

In a report of the Committee on Maintenance, American Road Builders' Association, A. O. Cuthbert, Chairman, recommended the underbody truck scraper instead of slow-moving power graders in this operation as being economical in the dual operations they perform, speed, original cost, and number of operators required.

Improved Photocopy Camera

Point-of-use copying of records is possible with an improved high-speed photocopy camera just announced by the Photo Records Division of Remington Rand. The Record Dexigraph can be rolled on casters from one department to another, wherever the records to be copied are located. It plugs into any 110-volt electrical outlet.

Any record up to 9¾ by 14 inches can be copied at same size or at any of five reductions down to 50% of original size. Larger records, up to 14 by 17 inches, can be copied at various smaller sizes for easier handling and filing. Exposed prints are carried in a light-tight transfer box to any darkroom.

The average operator can make 300 exposures or 150 fully processed photocopies in an hour. Every copy is completely accurate; proofreading is eliminated. Sensitized paper pre-cut to standard filing and binding sizes reduces costs to a minimum. Over-all dimensions are: width 36 inches, height, 64⅛ inches, and depth, 57⅛ inches.

A new free booklet on the Record Dexigraph is available from Photo Records Division, Remington Rand Inc., 315 Fourth Ave., New York 10.

Clark Moore Forms Firm

Clark Moore, formerly president and general manager of the Equitable Asphalt Maintenance Co., Kansas City, Mo., announces his return to the manufacture of asphalt surface heaters and allied equipment.

The new company will be known as the Asphalt Maintenance Co., with offices located at 41 Park Row, Suite 507, New York 7, N. Y.

HURRICANE FLUSH

Gives this Streamlined

STANDARD STEEL FLUSHER

MORE CLEANSING POWER

Carries a Heavy Load with a Powerful Flush!

It takes a powerful flush to sweep dirt and dust into gutters and sewers. Mere wetting of streets is not enough. Standard Steel equipment is built to supply a full 50 pounds pressure on each nozzle. They carry a heavy load — reloading is quickly accomplished — ease of operating this type flusher is well known to every city using Standard Steel Flushers. Embodying every new mechanical feature, styled for beauty, they reflect the progressive spirit of any city. For Complete Details, Write for Catalog.

OTHER PRODUCTS

Asphalt Pressure Distributors, Maintenance Distributors, Tar Kettles, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Construction Brooms.

Built to the Highest Standard

Standard Steel Works NORTH KANSAS CITY, MO.

and now . . . the mimeograph operator sits down too!

She's relaxed, free from fatigue, comfortably seated at the new A. B. Dick mimeograph—the table-top model 435 with built-in electric motor. It is shown here on the A. B. Dick model 27 stand, which adds foot control to the operator's ease.

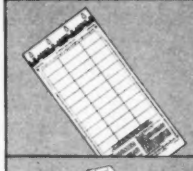
This comfort-engineering helps maintain a high level of production. In less than a minute you can have over 100 clear, black-on-white copies of written, typed and drawn material. Special accessories are available to speed and simplify systems work.

Ask your nearby A. B. Dick representative for a demonstration. Look in the phone book or write for his name. A. B. Dick Company, 720 West Jackson Boulevard, Chicago 6, Illinois.

Mimeographing is ***BALANCED*** *Duplicating*

MODEL 435. Full Flexamatic Control to handle wide variety of paper and card stocks. Fast-loading feed table with 125-sheet capacity. Three-way copy adjustment. Universal stencil clamp. For use with all makes of suitable stencil duplicating products.

Commercial Portfolio. Nearly 400 easily traced drawings for commercial firms. Add interest to bulletins, contest letters, house organs, training literature, and other material. Three sections: Sales Promotion and Advertising; General and Seasonal; Safety.



Addressing Stencil Sheet. For fast addressing. Mimeograph 33 addresses onto page of gummed, perforated labels. Guide lines on stencil sheet position the addresses accurately. Economical, high-speed method of preparing addressed labels in advance.

Mimeoscope* Model 5. For fast, easy tracing, illustrating, lettering. Built-in vertical and horizontal ruling edges with precision calibrations. No obstructions from below-surface clamps. Yellow tinted drawing surface for high visibility. Fluorescent tube gives soft, cool light. Also available is auxiliary Tiltoscope base model 35, shown here.

* TRADE-MARK REG. U. S. PAT. OFFICE

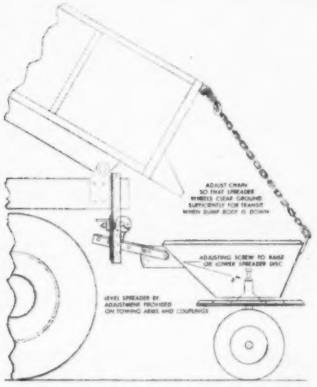
A. B. DICK —the first name in mimeographing

Spreader for Roads in Summer, Ice Control in Winter

The Brokol Model 20 spreader, manufactured by the Brokol Mfg. Co., Inc., 89-91 Madison St., Newark, N. J., although especially designed for spreading sand, cinders, salt, or anti-skid mixtures on ice pavements, is equally efficient for covering bituminous treated roads with sand or stone chips.

With a spreading capacity of from 4 to 20 feet, it is regulated by the speed of the truck or by the adjustable deflector plates fastened to the sides of the hopper. The thickness of the spread is regulated by raising or lowering the spreader disc.

The self-locking coupling device, manipulated by one man, requires a few seconds for attachment or detachment; it is adjustable in height and



length so that the spreader can be adapted to any truck in the correct working position. Two chains carry the spreader raised off the ground during transit.

Working equally well by either forward or backward movement of the truck, the spreader, pneumatic-tired, with hardened steel-cut bevel gears running in an oil bath, is 26 inches high; the hopper is 28 inches wide and 30 inches long.

New "Scotchlite" Colors For Reflective Signs

Two changes have been made on the 1949 "Scotchlite" traffic color card. Camouflage White has been replaced by No. 46 Wide-Angle Camouflage White. The new No. 244 Signal Silver is the most brilliant made to date. More and more traffic signs throughout the country are being reflectorized with Wide Angle "Scotchlite." The new construction of this type of sheeting doubles the life of signs, with increased reflection. Get the color card and place it directly in front of you—about 20 feet away in a dark or semi-dark location, and 5 or 6 feet above floor level. Hold a flashlight at eye level, pointed directly at the card as shown in the picture. Motorists will see "Scotchlite's" brightly visible reflection on streets and highways at night, since light rays from car headlights are at eye level to the motorist and passengers at all times.

For help or additional information in planning your safety program, contact

the nearest branch office or distributor, or write directly to the "Scotchlite" Div., Minnesota Mining & Mfg. Co., St. Paul 6, Minn.

American Road Equipment Distributors

The American Road Equipment Co., 2319 North 18th St., Omaha 10, Nebr., has appointed the Weco Equipment Co., P. O. Box 8, North Hollywood, Calif., as exclusive California distributors of American motor graders.

PIPE FITTINGS

Warren fittings, like Warren pipe, are made in all sizes and to all standard patterns for use with cast iron pipe of standard designs.

Special castings to meet your individual requirements may make use of our large stocks of non-standard patterns.

BELL & SPIGOT—FLANGE —SHORT BODY—PLAIN ENDS — MECHANICAL JOINT — SPECIALS

Sizes—2" to 84"

WARREN FOUNDRY & PIPE CORP

11 Broadway New York, N. Y.
72 Federal Street Boston, Mass.

You can't beat The HORNET!

- FOR SPEED OF CUTTING!
- FOR ECONOMY OF OPERATION!
- FOR ALL-ROUND DEPENDABILITY!
- FOR EASE OF HANDLING!
- FOR DEPENDABILITY AND LONG LIFE!

Write for Literature!

Model DJ
16" Cutting Width
only $300

Hornet Chain Saws combine compactness and light weight with ease of operation and fast, powerful cutting. They save time, labor and money. Low initial cost and long, dependable, trouble-free operation. Ruggedly constructed to meet the toughest requirements. Open-end cutting lengths available in 16", 20", 24" and 30". For two-man operation in 24", 30" and 36". Easy to handle and easy to move (Model DJ weighs only about 30 lbs.). Before you buy, get the Hornet story. Find out how you can apply this speedy, efficient chain saw to your cutting needs.

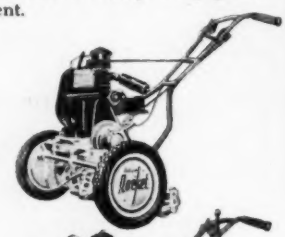
Distributed by

TUBESING EQUIPMENT CO., Station H, Box 85, BUFFALO 14, N. Y.
SOUTHERN DISTRIBUTING CO., Front & Central Ave., CINCINNATI 2, OHIO

POWER LAWN MOWERS by Eclipse

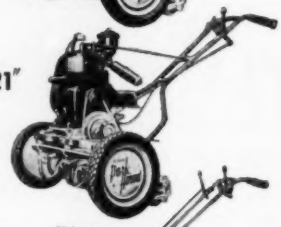
Only Eclipse offers all of the features looked for in power lawn mowers. These are the outstanding and exclusive features that assure trouble-free, long lasting and economical mowing perfection.

A complete line of power mowers provides exactly the right model to satisfy every grass cutting requirement.



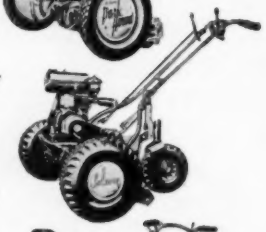
ROCKET 20″

This popular favorite is unexcelled in performance and economy. Excellent for maintaining beautiful lawns of schools and public buildings.



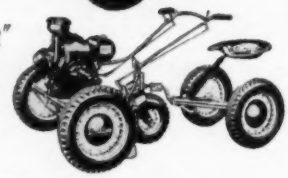
PARKHOUND 21″

Perfect for cemetery use, this durable model offers unmatched mowing of from two to four acres per day at minimum cost.



ROLLOWAY 25″

Preferred for larger areas such as parks, the full swivel caster-wheel permits short turns in close quarters. Plenty of power for steep slopes and terraces.



SPEEDWAY 32″

Large lawn areas are smoothly mowed at the rate of a 32″ swath 100 yards long every 30 seconds. Easy handling and operator comfort are provided by the sulky.

WITH THE PREFERRED POWER OF

4 CYCLE BRIGGS & STRATTON GASOLINE ENGINES

No mixing of gas and oil—less smoke—less noise.

Nation-wide service.

THE ECLIPSE LAWN MOWER CO.
1804 Railroad Street, Prophetstown, Illinois

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

Prompt Shipment

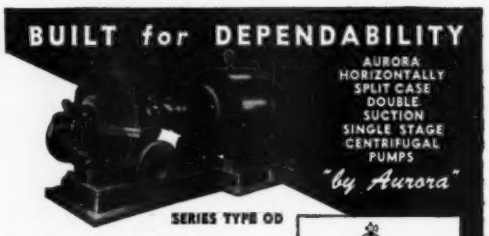
Inquiries and orders solicited

NORTHERN GRAVEL COMPANY
Muscatine, Iowa

P. O. Box No. 307 **Phone: 193**

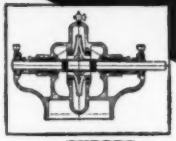
BUILT for DEPENDABILITY

AURORA HORIZONTALLY SPLIT CASE DOUBLE SUCTION SINGLE STAGE CENTRIFUGAL PUMPS "by Aurora"



SERIES TYPE OD

The ultimate in design and perfection — type OD pumps — in capacities to 4,000 G.P.M. and heads to 300 ft. — are accessible, compact and lasting. They are widely used for general water supply, for municipalities, industrial buildings and institutions. Also for handling condenser circulating water, liquids in paper mills and distilleries, chemical solutions, oil in oil fields and refineries, irrigation, etc.



AURORA CENTRIFUGAL PUMPS — are also available in HORIZONTALLY SPLIT CASE TWO STAGE DOUBLE SUCTION • SIDE SUCTION • VERTICAL • NON CLOG • SUMP • MIXED FLOW • DEEP WELL TURBINES • and SPECIAL DESIGN.

Write for CONDENSED CATALOG "M" or CONSULT SWEETS

APCO TURBINE-TYPE PUMPS

Here's the Pump for "1001" duties. SIMPLE — only one moving part, the impeller. Capacities to 150 G.P.M., Heads to 600 Ft. Slight change in capacity against drastic head variations.

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA Always PUMPS — AURORA PUMP COMPANY

66 Loucks Street, AURORA, ILLINOIS

New Television Stars

Milwaukee, Wis., used television to present to its citizens features of its 51 new Colecto-Pak refuse bodies, made by The Heil Co., Dept. 4339, 3043 W. Montana St., Milwaukee 1, Wis. Here the ease of loading the 36-inch-low bucket is demonstrated for the WTMJ-TV cameras. Other advantages of the units are the packing action of the compressor plate, efficient dumping operations, and fully enclosed, water-tight body.

Power Sweeper For Lawns or Yards

The Modern Rotary power sweeper, for lawns, yards, and streets, has two rotary brushes in the front of the unit that gather debris while the main brush draws it into a large catcher. Sweeping flush against protruding walls or curbing, the sweeper is designed for ease of operation: there are no gears, clutch, pinions, pawls, or differential.

The unit's speed is variable, from a snail's pace for attention to difficult terrain, to comfortable walking speed.

An advantage of this unit is that it picks up nails, bottle caps, and other metallic objects as well as leaves, dust, and dirt.

The sweeper is manufactured by the Modern Mfg. Co., 160 N. Fair Oaks Ave., Pasadena 1, Calif.

CITY OFFICIALS! *Investigate the New 1-Yard and 1½-Yard*

LEVELAND SCRAPER

ADAPTABLE TO

H & M FARMALL I-4 and I-6 — J. I. CASE "VAI" and "VAO" — ALLIS-CHALMERS — JOHN DEERE and any small Tractor with Hydraulic Pump and Control Valve

Every City Engineer, Park Superintendent, Street Superintendent is looking for the most efficient earth scraper. One which can carry the soil to any desired spot and spread the soil to any desired thickness without dragging. THE LEVELAND SCRAPER will carry the soil on wheels with less power three times faster than drag scraper. *Unexcelled for scraping and leveling streets, parks, playgrounds, cemeteries, and for road and airport maintenance work.*

A LABOR AND TIME SAVER FOR ALL EMERGENCY WORK SUCH AS CLEARING MUD FROM FLOODED AREAS AND STREETS

One Tractor Hydraulic Control Regulates the LEVELAND SCRAPER. NO EXTRA HYDRAULIC VALVES TO BUY!

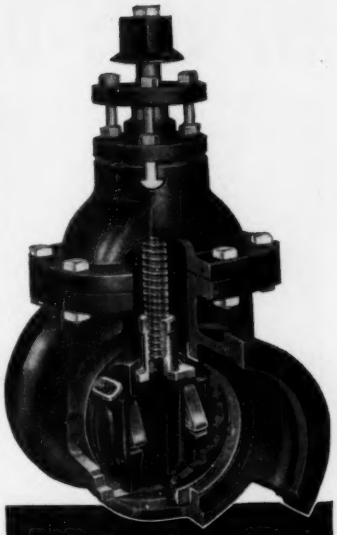
Write for complete information

Manufactured by

Western Equipment Mfg. Co.

P. O. Box 105 Glendale, Calif.

IOWA valves



Simple . . . rugged construction

MEET ENGINEERS RIGID 3 POINT SPECIFICATIONS

1 Solid bronze Wedges are placed loosely in two iron hooks which permit the wedging surfaces of the wedges to be at different angles with the wedges cast on the valve discs. *Solid bronze stem nut* is loose and independent of the gates and wedges, thus preventing binding or springing of the spindle or freezing of the gates.

2 All Working Parts are bronze or *bronze mounted* to safeguard against corrosion as well as to permit free and positive operation both in wedging the gates into contact with the seats and in releasing them.

3 Iowa Valves exceed A.W.W.A specifications and meet engineers choice for a quality product.

IOWA VALVE COMPANY

201-299 N. Talman Avenue • Chicago 80, Illinois

A subsidiary of James B. Clow & Sons

Nationally famed FAYETTEVILLE, N.C., Police Department *uses*

HARLEY-DAVIDSONS *Exclusively!*

Shown beside the fine police club house near Fayetteville, N. C., is Fayetteville's traffic squad consisting of (front row, left to right) Officers Hall and McLaurin, Sgt. Ivey, Officers Evans and Phillips. Rear row: S. Greenway, Harley-Davidson dealer and Chief Worrell.

Chief of Police

L. F. WORRELL

FAYETTEVILLE, N. C.

Nationally recognized for exceptional ability in crime detection and control.

Motorcycle patrol provides best method for controlling traffic

UNDER the able direction of Chief of Police L. F. Worrell, nationally famous for crime detection, Fayetteville's police department is also showing the way in efficient traffic control. Equipped exclusively with Harley-Davidsons, the traffic squad effectively handles the many traffic problems of a rapidly growing city, and keeps the accident rate to a minimum. Here, as in hundreds of other cities, large and small, the motorcycle method has proved indispensable to adequate law enforcement and prevention of traffic fatalities.

With traffic problems at an all-time peak, the menace of mounting injuries and deaths demands greater effort in reduction of accidents. Increase the effectiveness of *your* department by equipping it with Harley-Davidson Police Motorcycles, Servi-Cars and sidecars. See your dealer or write.

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

HARLEY-DAVIDSON

MOTORCYCLES **POLICE** ***SERVI-CARS***

BETTER TRAFFIC CONTROL

Ridenbaugh Appointed By Line Material

John W. Ridenbaugh has been appointed field engineer in New Mexico and several counties in West Texas by the Line Material Co., Milwaukee 1, Wis. His office will be located in Albuquerque.

Before his association with Line Material, Mr. Ridenbaugh was with the Ohio Power Company as assistant distribution engineer.

Ohio Brass Elections

Louis J. Ott R. A. LeFevre

W. A. Springer has been elected vice-president and treasurer of the Ohio Brass Co., Mansfield, Ohio, and Ephraim H. Brown was elected secretary. Louis J. Ott was appointed general sales manager, and R. A. LeFevre advertising manager.

Mr. Ott, who also worked in the factory during summer vacations, joined the advertising department in February 1928, after his graduation from Amherst College. Since 1935 he has been advertising manager, and during the war years he handled, in addition, the company's relations with the War Production Board.

Mr. LeFevre came into the advertising department in 1936 and has been in that department until his present appointment.

Portable Pump Has New Features

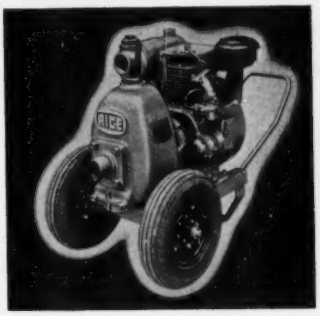
A new type of self-lubricated shaft seal (which is entirely enclosed in a welded, pressed steel cartridge) is featured in the Rice 7M and 10M self-priming centrifugal pumps made by the Rice Pump & Machine Co., Milwaukee 4, Wis. This entire unit may be quickly and easily replaced, if necessary, thereby eliminating much of the cost and labor formerly required to replace such seals. Replacement is accomplished in a matter of minutes rather than hours.

These two sizes have 2-inch suction and discharge openings. Their capacity is 7,000 and 10,000 gph, respectively.

Rice self-priming, centrifugal pumps are powered with Wisconsin air-cooled gasoline engines, and every pump is guaranteed to meet the capacity standards of the Associated General Contractors of America, bearing a rating plate to this effect.

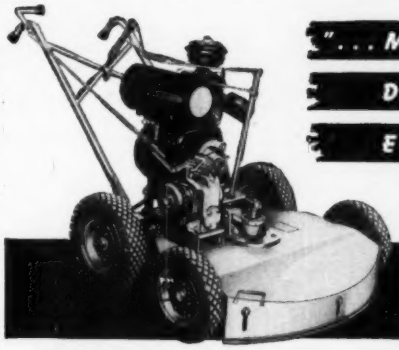
Other features of Rice pumps include a fully automatic priming after the pump is once put into service;

Direct line flow of water or other liquid through suction opening to the impeller.



Built-in suction check valve, which holds liquid in the pump for repriming and which eliminates the need for a foot valve in the hose;

Non-clogging impeller and wear plate, both of which are easily replaceable if wear occurs.



"... MANEUVERABLE, DEPENDABLE, EFFICIENT"

An enthusiastic user thus praises Whirlwind performance in an unsolicited letter. Name upon request.

ROTARY-SCYTHE, SUCTION-LIFT CUTTING ACTION ... PROVED THROUGH A 16-YEAR SERVICE RECORD!

TRADE-MARK
WHIRLWIND Power Mowers

... will do these things for your lawns:

1. Cut grass and weeds of any height. Rotary action cuts like a scythe, no matter how tall the growth.
2. Cut grass and weeds in any condition. Matted and tangled masses are lifted by suction and uniformly cut.
3. Cut clippings into a fine mulch for the turf. Allows tender grass to breathe and thrive.
4. Trim under low-hanging shrubbery and up to the edge of walls, fences, trees, monuments, walks and flower beds. Reduces hand trimming.
5. Cut with equal efficiency on both forward and backward travel. No lost motion.

What more could you ask?

Whirlwind's ability to meet all grass-cutting situations is acclaimed by thousands of satisfied users. Write for complete descriptive literature on Models 31, 24, and Junior, and for name of your WHIRLWIND dealer. Address Dept. A-49.

WHIRLWIND, INC. 3707 NORTH RICHARDS STREET MILWAUKEE 12, WISCONSIN
A SUBSIDIARY OF TORO MANUFACTURING CORPORATION • MINNEAPOLIS 6, MINNESOTA

Stewart Chain Link Wire Fence is available in several heights, weights and styles to meet the degree of protection desired.

● **Stewart Chain Link Wire and Plain or Ornamental Iron Fences and Entrance Gates** are made in a sufficiently wide range to adequately cover the fencing requirements of all classes of public property.

DON'T OVERLOOK STEWART
If your plans call for Iron or Wire fencing

Stewart Plain or Ornamental Iron Fence is made in a wide

variety of designs for all classes of public property.

Stewart All Steel Settee—Durable, attractive—in 4', 5' and 6' lengths.

In addition to fence, Stewart produces many other iron, wire and bronze products for the protection and beautification of public property. Catalog sent on request: when writing, mention products in which you are interested.

Stewart IRON and WIRE FENCES

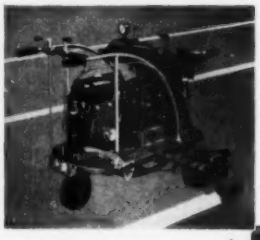
THE STEWART IRON WORKS CO., INC.
1621 Stewart Block
CINCINNATI 1, O.
Experts in Metal Fabrications since 1886

ANNOUNCING...

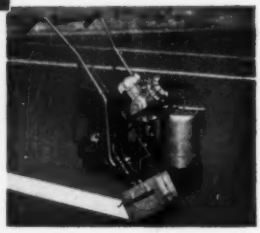
Many Added Features

NEW Mark-Rite LINE MARKERS

PAINT LINES FASTER AT LESS COST



Self-propelled
"LINE MASTER"
Vertical paint tank with agitator • Locked or swivel rear wheel • 2-wheel drive • Use as portable spray rig • Large capacity

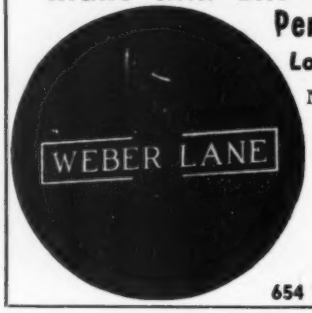


Hand-propelled
"ECONO-LINER"
Compact and light • Paint pot features quick release for reloading and cleaning • Paints to within ¼" of fixed object • Light duty spray rig

Please advise, when writing, in which machine you are interested. Detailed literature available for either or both.

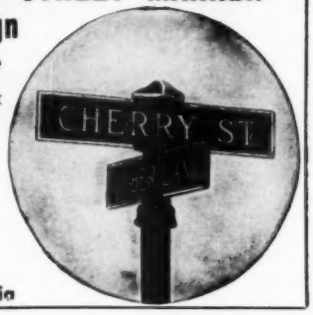
UNIVERSAL MFG. AND SALES COMPANY
8714 South Santa Fe Avenue • South Gate, California
Eastern Factory Branch: 1426 "K" Street, N.W., Washington 5, D. C.

NIGHT *and* DAY VISIBILITY *with* SUBURBAN STREET MARKER
Permanent Aluminum Street Sign
Low Cost ***No Maintenance***



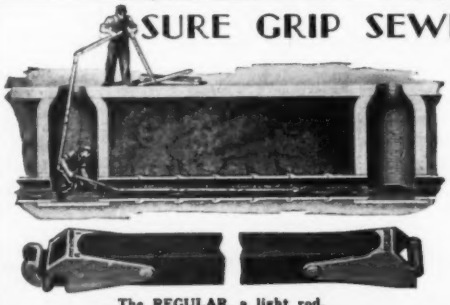
No effort has been spared to give you the best street sign ever offered: highly visible by night or day, attractive, simple to install, built to last *years and years.*

Write for further data or for Complete Catalog #20-5.



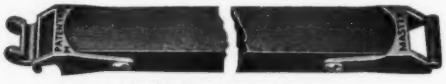
LAKE SHORE MARKERS
Division of Lake Shore Pattern Works
654 W. 19th Street **Erie, Pennsylvania**

SURE GRIP SEWER RODS and ACCESSORIES



The REGULAR, a light rod, Fir stock 1¼ x 1¼ inch square.

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.

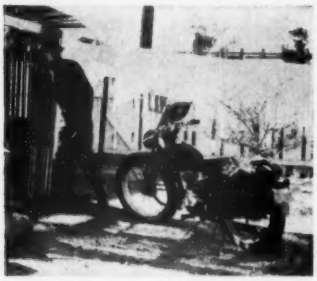


The MASTER, a heavy duty rod, Fir stock 1½ x 1½ inch square.

Write for catalog on complete line of sewer cleaning equipment.

EXPANDING SEWER MACHINE CO.
NAPPANEE, IND.

Motorcycled Officers Rout Rats



A Rodent Control Officer, of the Riverside, Calif., County Health Department, uses a lightweight 170-pound motorcycle manufactured by the Harley-Davidson Motor Co., Milwaukee 1, Wis. Here he inspects a shed in the department's fight against the rat menace.

New Distributor For Bucyrus-Erie

The Bucyrus-Erie Co., South Milwaukee, Wis., has appointed the Merrill-Brose Co., San Francisco, Calif., its distributor in northern California of the Hydrocrane.

Two New Models From Moto-Mower

The 30-inch LawnMaster.

The Moto-Mower Co., 4600 Woodward Ave., Detroit 1, Mich., has put out two new models of its lawn-mower line: the LawnMaster and the LawnPeer.

The LawnMaster cuts a swath of 30 inches; the LawnPeer, 24 inches. Both can be adjusted to cut from ½ to 2 inches in height.

With wide rubber-tread traction wheels mounted rearward and within the cutting width, the machines are designed so that the entire axle assembly, wheels and automotive bevelled-gear differential, are easily removed from the side frames to facilitate repair work. The mowers turn within a short radius, adding to maneuverability.

A 6-inch reel is equipped with 5 heat-treated alloy steel blades mounted on self-adjusting Timken tapered roller bearings and the entire reel assembly is removable for sharpening.

Metz Elected President Of Okonite

Albert F. Metz was elected president and general manager of The Okonite Co., Passaic, N. J. Mr. Metz, who was previously vice-president and treasurer, replaced the late Frank C. Jones.

Stephen A. Wilson, the company's general counsel, was elected a director, and Donald R. Stevens was elected executive vice-president and a member of the Executive Committee.

Mathieson Personnel Changes

The Mathieson Chemical Corp., 60 E. 42nd St., New York 17, N. Y., has transferred Roland F. Boehm from the district-sales managership of the Houston, Texas, office to the company's ammonia department, with headquarters in the New York offices. O. J. Theobald, Jr., formerly district-sales manager of the Charlotte, N. C., office, replaces Mr. Boehm at Houston, and J. F. Carey has been promoted to Mr. Theobald's previous position.

In considering replacement vs. reconditioning of a 53 year old line carrying Water to Chula Vista and National City, Calif., the California Water and Telephone Company decided to recondition the line since replacement in addition to the tremendous cost would have meant disturbing many acres of valuable citrus and vegetable fields.

Reconditioning involved a thorough cleaning by National of over 15,000 feet of 24 inch line, after which the entire line was centrilined.

According to information received, the reconditioning has added at least 20 years more of useful life with a marked increase in the volume of water previously handled.

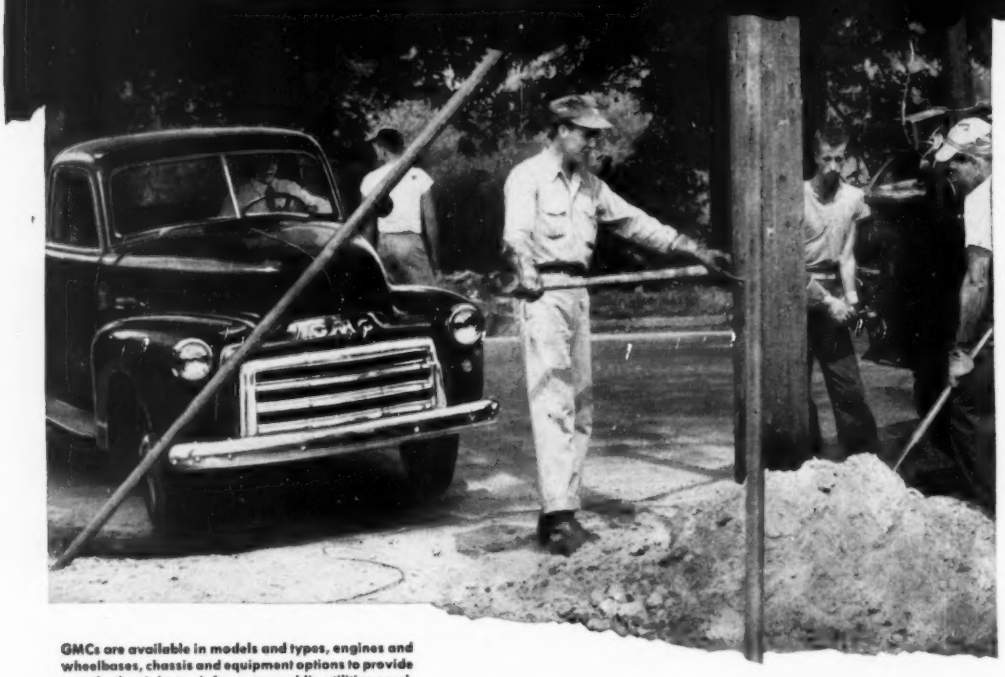
Our engineers will gladly submit facts and figures on how National has solved similar problems for other utilities. Why not write today?

31

NATIONAL WATER MAIN CLEANING CO., 50 Church St., N.Y. 7, N.Y.

ATLANTA, 333 Candler Building • ATLANTA, 1221 Mortgage Guarantee Building • BOSTON, 115 Peterboro Street • CHICAGO, Room 1336, 122 So. Michigan Avenue • FLANDREAU, S. D., 315 No Crescent Street • HOUSTON, 2578 Grant Street • KANSAS CITY, 422 BMA Building • LITTLE FALLS, N. J., Box 91 • LOS ANGELES, 448 South Hill Street • OMAHA, 3812 Castellar Street • RICHMOND, 210 East Franklin Street • SALT LAKE CITY, 149-151 Second So. Street • SAN FRANCISCO, 681 Market Street • SIGNAL MOUNTAIN, TENN., 204 Slaxton Street • WACO, P. O. Box 887 • MONTREAL, 2028 Union Ave. • VANCOUVER, B. C., 505 West 1st Ave. • WINNIPEG, 576 Wall Street • HAVANA • MAYAGUEZ,, PUERTO RICO • BOGOTA • CARACAS • MEXICO CITY

The Better Buy for BIGGER Value



GMCs are available in models and types, engines and wheelbases, chassis and equipment options to provide exactly the right truck for every public utilities need.

GMC TRUCKS
The Key to Greater Truck Value
GASOLINE · DIESEL

Because of the outstanding engineering, testing and manufacturing facilities of the world's largest exclusive producer of commercial vehicles.

Because of a nationwide network of specially equipped and expertly manned factory-operated branches and dealer service stations.

Because of a new and extensive parts warehousing program assuring fast, flexible distribution of GMC parts to every section of the country.

Because of products that are truck-built throughout . . . providing engines and chassis that are famous for long-life, low-cost operation.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

700-Foot Range In Light Mist Sprayer

The Lawrence Aero-Mist Sprayer Co., 58b Federal St., Greenfield, Mass., is producing a mist sprayer with a vertical range of about 65 feet and a horizontal range of over 700 designed for use in small areas where a heavier machine could not be operated at maximum efficiency.

Light enough to mount on a pick-up truck or trailer, the L-40 has a 26-gallon concentrate tank. The one-piece centrifugal Aero-Mist fan, turning at normal operating speed, requires 5 hp from the 13.3-hp two-cylinder air-cooled Wisconsin engine. At normal speed it has an air output of 4,000 cubic feet per minute at a velocity of 125 mph. The turret-type mount permits 360-degree rotation; all controls are within reach of the operator's seat.

Lightweight Traffic Liner Keeps Cars In Line

With spring tension holding the brush firmly and squarely to the road surface at all times, insuring clean-cut lines, the Jawco lightweight traffic liner is constructed with one wheel in the front that follows a guide line, insuring a straight line despite road irregularities.

The paint tank is easily removed for cleaning, and the apparatus comes with an accessory box to hold miscellaneous tool requirements. The machine makes lines of 4, 5, 6, 7, or 8 inches, weighs 40 pounds, is 40 inches high, and 20 inches wide. Jawco traffic paint is available in white, yellow, red, and black. The traffic liner is manufactured by the Weaver Machine Co., P. O. Box 1224, York, Pa.

Poole Sales Manager of Keystone Asphalt Products

The Keystone Asphalt Products Co., a division of the American-Marietta Co., 43 E. Ohio St., Chicago, Ill., has appointed J. E. Poole general sales manager, to supervise both paving products and Kapco Board sales.

J. E. Poole

Beginning with American - Marietta eight years ago, he was advanced to the position of technical director of Keystone and later sales manager of its paving products division.

THE MODERN LAWN MOWER SHARPENER

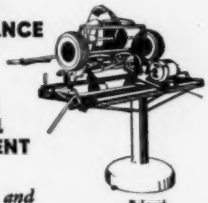
CUTS MAINTENANCE COSTS

•

LOWER CAPITAL INVESTMENT

•

Economically and Quickly Sharpens All Municipal Mowers



Priced $241.50 (less motor)

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling No Extra Attachments Needed

All reel type mowers, from 5-inch edgers to 36-inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor remain in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments. Skate Sharpener Attachments available.

1/3-hp. G.E. 60-cycle Motors now available—$21.50 extra.

Send for Free Bulletin No. 25B

ORDER NOW • IMMEDIATE DELIVERY

MODERN MFG. CO.

160 N. FAIR OAKS AVE. • PASADENA 1, CALIF.

THE *New* "CEMENT GUN" BULLETIN IS READY!

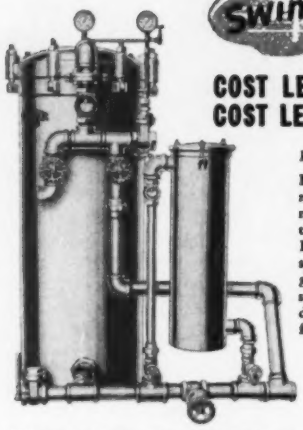
It is filled with "on-the-job" pictures and describes many of the varied operations we have performed successfully and economically with "Gunite" and the "Cement Gun."

Photographs cover many types of work including repairs to reservoirs, dams, sewers and bridges. Pre-stressed tanks, swimming pools, steel encasement and pile encasement are included as well as other uses and design data and specifications.

A request on your letterhead will bring you a copy by return mail. Ask for Bulletin D2400.

CEMENT GUN COMPANY "GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

BOWSER DIATOMITE FILTERS FOR Swimming Pools



COST LESS TO INSTALL! COST LESS TO OPERATE!

Planning a swimming pool?

It's a fact—Bowser's most modern method . . . diatomite filtration, costs less than outmoded filters. Bowser yields clearer, safer water. Informed engineers specify Bowser as superior on 10 points of design and operating features.

Get the facts in this Bowser Booklet!

We invite your request for copies of "THE MODERN WAY." If you operate or plan to build a pool, you should read this booklet. We solicit your requests for bids.

BOWSER. INC.—Water Filtration Division

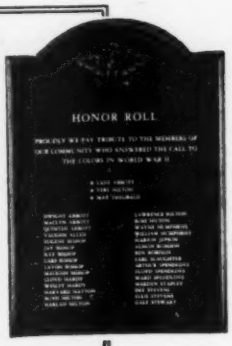
1396 CREIGHTON AVE. — FORT WAYNE 2, INDIANA

DEDICATE WITH PRIDE THESE EVERLASTINGLY BEAUTIFUL PLAQUES

NEWMAN HAND-CHASED BRONZE is traditionally ideal for tablets, honor rolls, signs, building markers and door plates.

ATTRACTIVE PRICES FOR FINER BRONZE PRODUCTS BY NEWMAN

TODAY . . . PLEASE WRITE for Tablet Catalog and also data on bronze, aluminum or stainless steel doors, railings, gates, grilles, etc. *No obligation.*



Newman Brothers, Inc.

650 W. 4th St. Cincinnati 3, O.

LEADITE

FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured ***No Large Bell-holes to Dig***

Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 50 years ● Leadite joints improve with age.

Be sure it is Leadite and accept no imitations

THE LEADITE COMPANY

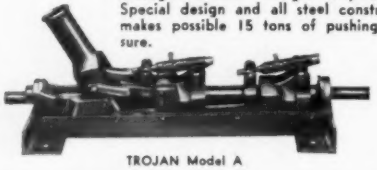
Girard Trust Co. Bldg., Philadelphia 2, Pa.

No Caulking

The TROJAN pipe puller and pusher — Cuts Costs! Saves Time!

• Simplifies installation or renewing water and gas service lines under pavement

MODEL A—for ½" to 1" pipe. One man can lift in and out of trench and install average service. Weighs only 65 lbs. Special design and all steel construction makes possible 15 tons of pushing pressure.

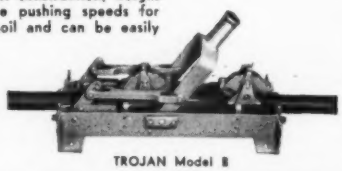


TROJAN Model A

DOUBLE ACTION AND CONTINUOUS OPERATION

No re-setting of grip required. Push pipe is made of double extra heavy steel pipe with inside couplings for butt joint. Pilots and Special Couplings will handle variety of jobs.

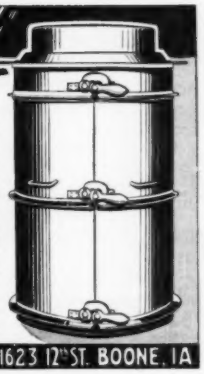
MODEL B—will push up to 2" pipe without additional dogs, clamps or wedges. Heavy duty, all steel construction, weighs 140 lbs. Has three pushing speeds for different types of soil and can be easily reversed.



TROJAN Model B

The TROJAN Manufacturing Co., 441 East Water St., Troy, Ohio

THE "Quinn Standard" FOR CONCRETE PIPE



The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost.

WRITE TODAY. Complete information, prices, and estimates sent on request.

Also manufacturers QUINN CONCRETE PIPE MACHINES

QUINN WIRE & IRON WORKS 1623 12TH ST. BOONE, IA

AQUA VALVE BOX LOCATOR

Master of the Toughest Location Problems!

Finds hidden boxes in half the time. Instant top-view reading, no stooping. Guaranteed in snow, ice, any paving!

$29.50 F.O.B. CIN. O

Complete with leather case and strap.

Send no money for 15 day FREE TRIAL!

AQUA Survey & Instrument Co.

2513 LESLIE AVE., NORWOOD CINCINNATI 12, OHIO

Hydraulic Dumping Of Lift Truck Loads

The Hyster Co., Portland 8, Ore., is producing a revolving apron attachment to make possible the turning over or dumping of lift-truck loads by an hydraulic mechanism on the Hyster "20" and "40" lift trucks.

Hydraulically controlled, a revolving head or turn-table on which conventional fork arms are mounted turns 180 degrees in either direction from the center. Capacity loads of 1,725 pounds with the "20" and 3,650 pounds with the "40" may be turned with the device.

An important feature of the apron is that a special Load-Crab unit may be mounted on the turn-table of the "20" in place of regular fork arms, enabling the side-squeezing of loads with sufficient pressure to lift without the need of a pallet. These particularized arms, designed for handling such unit packages as bales, boxes, crates, or drums, produce a variety of combinations for the lifting, turning, and tiering of various types of materials.

Construction-Body Trucks

A new model of the 7-man crew-compartment line construction-body truck has been put out by The American Coach & Body Co., 9503 Woodland Ave., Cleveland 4, Ohio. Model 5805 mounts on a chassis with wide flat-faced cowl, and is designed to take advantage of the extra space provided by the extra wide hood and fender lines in current truck chassis. The crew compartment, carrying 7 men, is integral with the body. The cab is accessible from both sides of the body and the hinged front seat permits easy entrance to the rear seat.

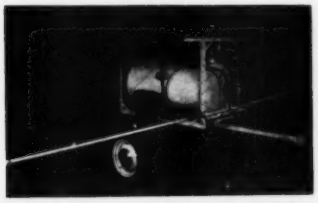
This body holds 7 men and equipment.

Fisher Named President Of Gar Wood

Edward F. Fisher has been elected president of Gar Wood Industries, Inc., Wayne Div., Wayne, Mich.

Mr. Fisher who, with his brothers founded Fisher Body, now a division of the General Motors Corp., will head an organization made up of four divisions manufacturing hydraulic hoists, dump bodies, winches, cranes, Load-Packers, truck tanks, ditchers, spreaders, finegraders, power shovels, tractor equipment, and road patrols.

Eliminate Weeds The Spray Way



Weeds in municipal golf courses, cemeteries, plant grounds, and town-hall lawns can be sprayed effectively by this Kromer tractor-mounted sprayer, manufactured by the O. W. Kromer Co., 1120 Emerson Ave., Minneapolis 11, Minn.

—Certainly—

Sewage Treatment costs can be reduced!

CLOROBEN

proves it

•

Springfield, Missouri

reports its results

Reprints available soon.

THE CLOROBEN CORPORATION
15 EXCHANGE PLACE, JERSEY CITY 2, N. J.

The Pioneers of Up Sewer Treatment

"Gunite" Saves a Bridge

Have you watched the bridge on "Main St.", once the pride of the city, deteriorate during years of service? Looks pretty bad now, doesn't it?

It can be restored with "Gunite" to give many more years of maintenance-free service like the one above.

Many agencies have specified and used "Gunite" for repairs to bridges, sewage disposal plants, water tanks, stadia, etc.

We welcome inquiries from those having concrete restoration problems of any kind.

Send for our 48-page "Gunite" Bulletin.

PRESSURE CONCRETE COMPANY — "GUNITE" CONTRACTORS AND ENGINEERS
193 EMMET ST., NEWARK 5, N. J. • 33 N. LA SALLE ST., CHICAGO 2, ILL. • S. COURT ST., FLORENCE, ALA.

HERE'S BIG SHOVEL PERFORMANCE IN A SMALL MOBILE UNIT

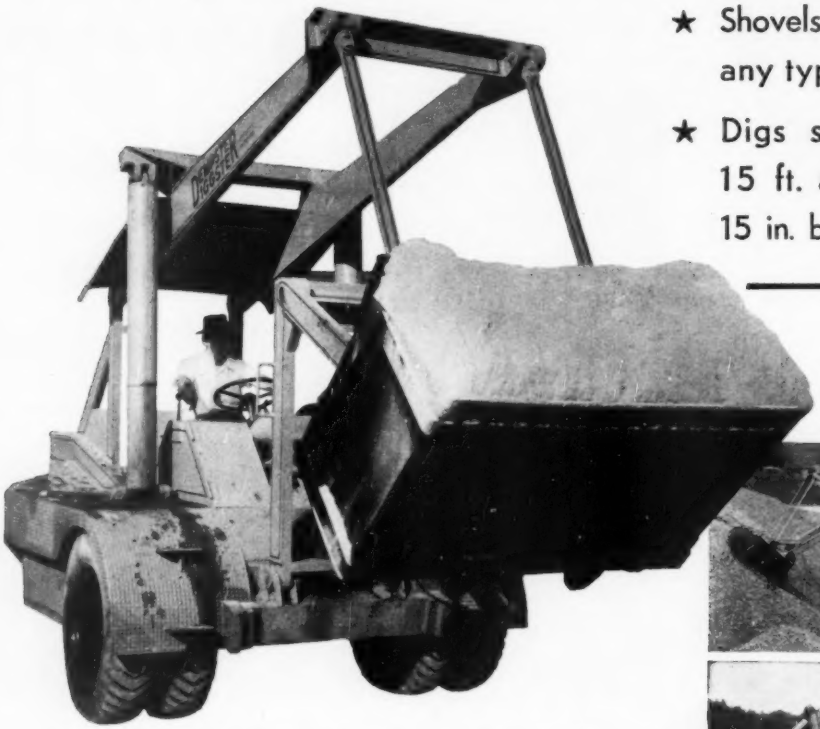
DEMPSTER DIGGSTER

TRADE MARK

THE AUTOMOTIVE HYDRA-SHOVEL THAT-

★ Shovels and Loads any type material

★ Digs solid earth 15 ft. above and 15 in. below grade



Here is a rubber tired automotive shovel that is equally at home in excavation work; in stockpiling, loading or on the road. It is the most compact and maneuverable, one-man-operated, rubber tired automotive shovel and loader available. It is the only machine built with simultaneous but independent hydraulic crowd and hoist action. Variable crowd action at any dipper position means it can dig lower—15 inches below grade. Exclusive hoisting action means it can dig higher—digs out a 15 ft. bank. Extraordinary dumping height and reach means easier loading, even distribution of load in the largest of trucks. Dempster-Diggster buckets are easily interchangeable. For digging, a 1 cu. yd. (heaped) bucket with hardened steel teeth is used. For loading work, stockpile buckets are available in 1¼, 1½ and 2 cu. yd. capacities. Hoisting, Crowding, Steering and Braking are all 100% hydraulic.

Large photo above shows close-up of Dempster-Diggster with 2 cu. yd. stockpile bucket loaded. At right, top: Loading crushed stone. Center: Diggster dumps crushed stone into truck. Right, bottom: Digging out a high bank.

Write today for complete information.

DEMPSTER BROTHERS INC.

849 Dempster Bldg. **Knoxville 17, Tenn.**

Vandervoort Elected Marlow Pumps Vice-President

Vincent Vandervoort, New Jersey industrialist and banker, has been elected vice-president of Marlow Pumps, Ridgewood, N. J. In addition to his position with Marlow Pumps, Mr. Vandervoort is also vice-president of the Paterson Savings and Trust Company, president of the Alexander Hamilton Hotel Corp. in Paterson, and on the governing boards of the New Jersey Manufacturers Association, the Paterson Chamber of Commerce, the New Jersey Manufacturers Association Hospitals Co., the New Jersey Manufacturers Casualty Insurance Co., and the New Jersey Manufacturers Association Fire Insurance Co.

V. Vandervoort

A year and a half ago, Mr. Vandervoort retired from the position of president of the Watson Machine Co.

Fast Trenching In Utilities Departments

The photo above shows a simple, fast and economical trencher for water, sewer, and conduit work built by The Mississippi Engineering Co., Grand Mound, Iowa. It digs 4 to 5 feet deep, 7½ to 10 inches wide at the rate of 300 feet or more per hour. The McDonald E-Z Mound Trencher is sold complete with scraper, depth control, and winch, and operates from any standard power take-off unit.

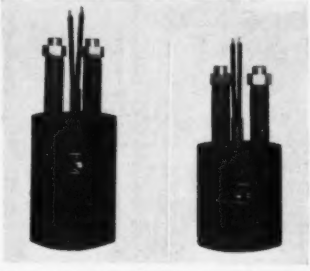
Dorr Appoints Brazilian Representative

Sociedade Tecnica e Comercial Serva Ribeiro S/A, Sao Paulo, Brazil, has been appointed exclusive Brazilian representative for The Dorr Co., Engineers, 570 Lexington Ave., New York 22, N. Y.

Serva Ribeiro, whose president is Dr. Noe Ribeiro, and Civilsan, a company associated with Serva Ribeiro and headed by Dr. Guilherme Winter, serve the engineering and construction fields of all of Brazil and, in addition to The Dorr Co., they will handle other equipment for which Dorr has exclusive overseas rights (such as Oliver United Filters, and C. E. Raymond sludge-drying units). They represent such companies as Allis-Chalmers Mfg. Co., Buckeye Traction Ditcher Co., Jeffrey Mfg. Co., Marion Power Shovel Co., York Industries, Inc. Technical assistance will be provided by resident Dorr engineers.

Street Lighting Transformers From Standard Transformer C

Street lighting transformers are one of the five lines produced by The Standard Transformer Company, Warren, Ohio. They are fully described in a new 18-page Bulletin S-701-A entitled "Street Lighting Transformers." These transformers are of six types: manhole, pole-base, aerial, branch-line, series-multiple, and testing. The bulletin illustrates, describes their use, and gives specifications for each.



These two street lighting transformers are typical of the six types supplied by The Standard Transformer Co.

Smithson Trash Receptacles

16 years of research and engineering have produced the world's most useful and most beautiful Trash Receptacle.

- LOW COST OF MAINTENANCE
- NO PAINTING
- FACTORY SUPPLY OF SPARE PARTS
- SMOTHERS FIRES
- MADE OF ALUMINUM
- NO CORROSION

Write today for more reasons why the City of Los Angeles purchased 577 of these units.

SMITHSON COMPANY
219 So. Mednik Ave., Los Angeles 22, Calif.

A MIXER built for ASPHALT!

YOU can't mix asphalt like concrete. It takes better equipment to accurately proportion and mix asphalt. The Foote Kinetic Mixer is especially designed and built for asphalt, and is not comparable in any way with the ordinary concrete mixer. It provides a mulling action. Asphalt is pumped between and within the aggregate layers assuring complete coating of every particle of aggregate without waste of asphalt. This means 8 to 10 batches more out of every barrel of asphalt. Capacity is 3 cu. ft. in 30 seconds. Ask for Bulletin K-100.

THE FOOTE CO., INC.
Subsidiary of Blaw-Knox Co.
1958 State St. • Nunda, New York

the FOOTE Kinetic mixer
A BLAW-KNOX PRODUCT

GARRISON

HYDRAULIC POWER STEERING

INSTALLED ON NEW 100-HP. #12 CATERPILLAR MOTOR GRADER

Also for All Municipal GRADERS and WHEEL TYPE TRACTORS, Dump Trucks, etc.

- Reduces steering effort to easy one-hand operation
- Wheel fight and road shock eliminated
- Easily installed
- Mechanical steering in effect with hydraulic assistance
- Available in kits

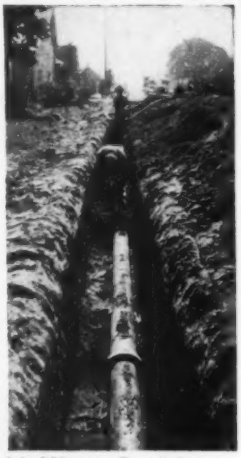
Also made for 75-hp #12 graders

Contact your Dealer or Write direct to

GARRISON MANUFACTURING CO.

1506 Santa Fe Avenue, Los Angeles 21, Calif.

McWANE B & S PIPE for TRENCH POURED JOINTS



EASY

. . To CUT

. . To Tap

. . To LAY

For quick installation use McWane B&S cast iron pipe.

Easy to cut . . . handle . . . tap . . . lay. Meets rigid Standard Class 150 Federal Specifications, 500-pound test.

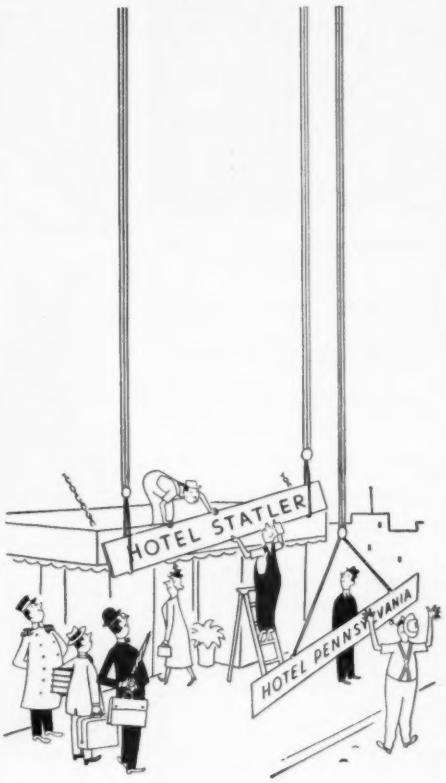
PROMPT SHIPMENT 4" and Larger Sizes.

ALL SIZES 2" thru 12"

McWane Cast Iron Pipe Co.

Birmingham 2, Ala.

McWANE 2" CAST IRON PIPE

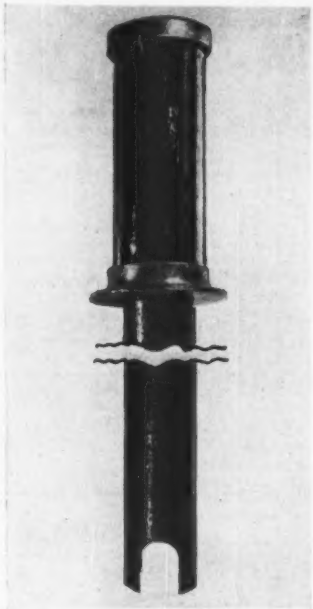


The Hotel Pennsylvania in New York City is now known as

HOTEL STATLER

Hotels Statler Co., Inc.

Service Boxes



The service boxes manufactured by Valveo, Ltd., 57 William St., New York 5, N. Y., have covers and flanges of cast-iron. All other component parts, except for the brass locking device, are made of Orangeburg pipe (composed of about 25% by weight of tough fibrous structure and 75% of hard coal-tar pitch thoroughly saturated under vacuum).

Constructed with sufficient area and weight of metal to enable location by electronic or magnetic detection apparatus, the installation accommodates up to 3-inch-diameter service pipe. It can be used in varying trench depths since the shaft can be sawed with an ordinary coarse-tooth woodworking saw to the depth desired.

Shock-proof and easily installed, the service box, including the cover and flange, weighs only 15 pounds. It will neither corrode nor disintegrate and is unaffected by alternate freezing and thawing. The unit comes with a cast iron cover that has overlapping edges and is locked to the shaft by means of a standard brass pentagonal belt.

The sliding-type unit consists of two telescoping lengths of Orangeburg pipe, the upper length being 4 inches i. inside diameter and the lower section 3 inches in inside diameter. Service boxes are fabricated from one 12-inch-long section of 4-inch-diameter pipe and one length of 3-inch-diameter pipe—the length depending on the extension required. The base of the 3-inch-diameter section is slotted to facilitate fitting over the valve and service pipe. The design of the service box can be varied to suit any special requirement.

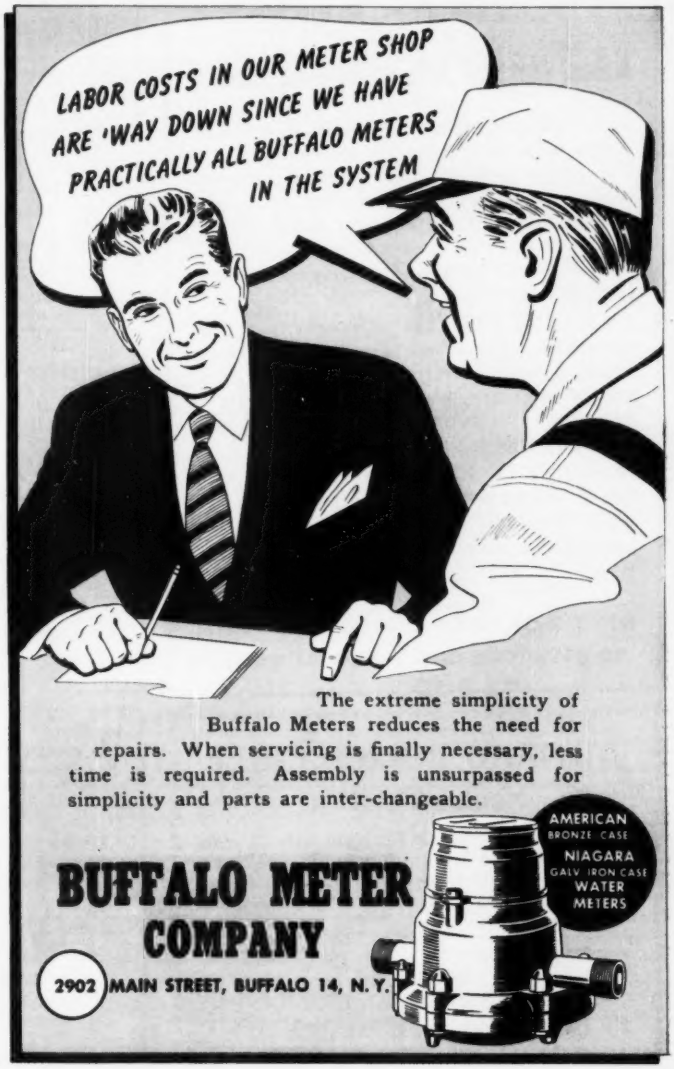
COMING TO
CLEVELAND
NEW
VISIT THE HOLLENDEN...
COMPLETELY REDECORATED!

★ 1000 ROOMS WITH BATH
★ RADIO IN EVERY ROOM
★ SIX FINE RESTAURANTS
★ CENTRAL DOWNTOWN LOCATION
★ GARAGE ATTACHED

HOTEL HOLLENDEN

Robert P. Joyce, General Manager

Home of the famous Vogue Room



The extreme simplicity of Buffalo Meters reduces the need for repairs. When servicing is finally necessary, less time is required. Assembly is unsurpassed for simplicity and parts are inter-changeable.

AMERICAN BRONZE CASE
NIAGARA
GALV. IRON CASE
WATER METERS

BUFFALO METER COMPANY

2902 MAIN STREET, BUFFALO 14, N. Y.

GUNITE

PNEUMATICALLY PLACED CONCRETE
DENSE • DURABLE • HIGH STRENGTH

for

Restoring Distintegrated Concrete
Dam, Dock and Bridge Repairs
Steel Encasement and Fireproofing
Sewer, Water Pipe and Penstock Lining
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Swimming Pools—Pressure Grouting
Prestressed Tanks and Silos

Get in touch with us for engineering data and estimates

GUNITE CONSTRUCTION CORPORATION
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ATTENTION! BARGAIN!

A Real Closeout Sale on Parking Meters!

Fargo is forced to sell 818 Model E PARK-O-METER parking meters installed less than 18 months ago. Also have 36 new Model E PARK-O-METER meters in original boxes and 52 extra mechanisms. All meters complete with poles and sidewalks flanges, all completely serviced and in excellent working condition. Purchased new from Magee-Hale Company, Oklahoma City, Okla. at $57.50 each.

New North Dakota State Law prohibits the use of parking meters. Therefore, we invite bids on all or any portion of the 854 meters. Meters may be examined by potential purchasers. Sealed bids will be accepted on the meters on an FOB Fargo basis, packed for shipment, until 12:00 Noon, Monday, May 2, 1949, at the Office of the City Manager, City Hall, Fargo, North Dakota. State number of meters wanted and bid per meter. Bids will be opened in public at the City Manager's Office at the above stated time. Get your bids in early.

DON'T MISS THIS UNUSUAL OPPORTUNITY TO SAVE YOUR CITY SOME REAL MONEY!

RETIRED POLICE CHIEF
Seeks Position

Retired Police Chief, 50 years old, with 22 years of experience in large department is seeking a position. Best of references from high city and state officials for honesty, trustworthiness and efficiency. Ex-service man.

Write:

Box No. 312
THE AMERICAN CITY
470 Fourth Avenue New York 16, N. Y.

For Sale

Triumph Electric Co., Induction Motor, 440 V., 79 Amp., 75 hp, 1750 RPM, 2 Phase, 60 Cycle.

General Electric Induction Motor, 75 hp, 1760 RPM, 440 V, 59 Amp., 60 Cycle.

Clark Control Panel, 440 V, 2 Phase, 75 hp, 60 Cycle.

Can be inspected at our Water Plant.

Robert Kent, Village Clerk.
Williston Park, Nassau County, N. Y.

Water Works Superintendent Desires Position

Water Works Superintendent with 9 years of experience is available. Single, age 38. Hold Texas "B" Water and "C" Sewerage Certificates.

Address Box #313
THE AMERICAN CITY
470 Fourth Ave., New York 16, N. Y.

Assistant to City Engineer wanted

California city, 15,000 population, requires the services of an assistant to the City Engineer. Considerable designing now under way, including sewage treatment plant. Salary $350 to $450 per month depending upon qualifications. Applicants should give full particulars and references.

Address: Box #314
THE AMERICAN CITY
470 Fourth Avenue
New York 16, N. Y.

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Architects—Engineers—Specialists for 25 years
Swimming Pools, Ice Rinks, Recreation Parks, New Designs, Surveys, Plans and Supervision.
Old Pools Modernized
Correspondence Invited
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Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators & Power Plants, Industrial Buildings, City Planning, Laboratory, Reports, Valuations
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Organized to assist municipalities and public groups in utility valuations, rates, franchises, accounting and surveys.
John Bauer, Ph.D., Director
280 Broadway, New York City 7

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Electric Power, Water Works, Sewerage, Paving, Reports, Designs, Supervision.
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ASSOCIATED CONSULTANTS
Consulting in Street Traffic and Transportation
GEORGE W. BARTON
Engineering Director
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ABRAMS AERIAL SURVEY CORPORATION, Lansing, Michigan
One-quarter Century of Experience
Planimetric and topographic maps, controlled mosaics,
Stereograms, relief models, large-scale atlas sheets.
The complete job—photography—compilation—to finished survey.
Oblique photographs for pictorial views—for project presentation.
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Modern Comprehensive City and Area Planning and Development
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Fire Alarm and Traffic Signal — Engineers and Consultants
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Branches: New York, N. Y. — Baton Rouge, La. — St. Louis, Mo.

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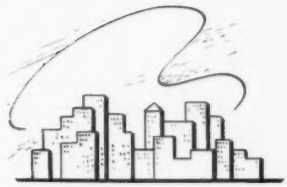

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